EFFECTS-BASED OPERATIONS: TACTICAL UTILITY

A thesis presented to the Faculty of the U.S. Army
Command and General Staff College in partial
fulfillment of the requirements for the
degree

MASTER OF MILITARY ART AND SCIENCE
General Studies

by

JOHN T. HARRIS, MAJOR, US ARMY
M.B.A., Webster University, Fort Leavenworth, Kansas, 2004
B.A., Indiana University, Bloomington, Indiana, 1990

Fort Leavenworth, Kansas
2004

MASTER OF MILITARY ART AND SCIENCE

THESIS APPROVAL PAGE

Name of Candidate: Major John T. Harris

Thesis Title: Effects-Based Operations: Tactical Utility

Approved by:

_____, Thesis Committee Chair
Charles S. Soby, M.B.A.

_____, Member
Harold S. Orenstein, Ph.D.

_____, Member
Jack D. Silvers, B.S.

Accepted this 18th day of June 2004 by:

_____, Director, Graduate Degree Programs
Robert F. Baumann, Ph.D.

The opinions and conclusions expressed herein are those of the student author and do not necessarily represent the views of the US Army Command and General Staff College or any other governmental agency. (References to this study should include the foregoing statement.)

ABSTRACT

EFFECTS-BASED OPERATIONS: TACTICAL UTILITY, MAJ JOHN T. HARRIS, 90 PAGES.

Thesis research compares the effects-based approach to operations against the current objectives-based approach to operations.

The thesis suggests that effects-based operations have tactical utility to the US Army. The thesis found that effects were more enduring than tasks. The approach directs action based on the effects desired providing more enduring guidance than the use of tasks to direct action. The effects-based approach is more effective at directing action likely to move the state of conflict to the desired end state, while discouraging counterproductive action. Use of effects provides subordinates greater latitude in determining appropriate tasks, purposes, and methods, while ensuring actions are within the commander's intent. The approach fosters adaptive organizations through the requirement to assess results against the causal linkage between actions and effects. The approach recognizes that actions create multiple effects, intended and unintended. The approach is better suited across the spectrum of operations, because the analytical process is unchanged regardless of the type of operation. Finally, the effects-based approach provides greater opportunity for unified action from the tactical level through to the strategic level, by breaking the conquest paradigm and recognizing that actions by military forces affect the military, diplomatic, informational, and economic lines of operations.

ACKNOWLEDGMENTS

TABLE OF CONTENTS

ACRONYMS

AUTL	Army Universal Task List
BCTP	Battle Command Training Program
BOS	Battlefield Operating System
BST	Brigade Special Text
C2	Command and Control
CADRE	College of Aerospace Doctrine, Research and Education
CL	Causal Linkage
COE	Contemporary Operating Environment
EBO	Effects-Based Operations
ECOORD	Effects Coordinator
F&E	Fires and Effects
FA	Field Artillery
FECC	Fires and Effects Coordination Cell
FM	Field Manual
FSC	Fire Support Cell
FSCOORD	Fire Support Coordinator
HPT	High-Payoff Target
IBCT	Interim Brigade Combat Team
IDA	Institute for Defense Analysis

ISR	Intelligence, Surveillance, and Reconnaissance
JFCOM	Joint Forces Command
JP	Joint Publication
MDMP	Military Decision-Making Process
METL	Mission Essential Task List
MOOTW	Military Operations Other Than War
RDO	Rapid Decisive Operations
SASO	Stability and Support Operations
SBCT	Stryker Brigade Combat Team
TCS	Task, Conditions, and Standards
TF	Task Force
TOC	Tactical Operations Center
TRADOC	Training and Doctrine Command
TTP	Tactics, Techniques, and Procedures
UJTL	Universal Joint Task List
USAF	United States Air Force

ILLUSTRATIONS

TABLES

x

CHAPTER 1

INTRODUCTION

In the joint arena, the concept of effects-based operations (EBO) is a subject of considerable study, discussion, and even argument. EBO is an enabling concept to another key future concept--rapid decisive operations (RDO). The joint community accepts EBO as a new conceptual approach to military operations. However, EBO is currently not part of the US Army lexicon below the corps level.

According to the US Joint Forces Command (JFCOM) J9, EBO is "a process for obtaining a desired strategic outcome or effect on the enemy through the synergistic and cumulative application of the full range of military and non-military capabilities at all levels of conflict" (EBO White Paper Version 1.0 2001, ii). This definition focuses on the "strategic outcome," which may seem to preclude utility for the operational and tactical levels. It is the purpose of this thesis to determine if EBO is applicable or has utility at the tactical level of war.

Background

In the summer 2001, the US Army exercised the first interim brigade combat team (IBCT) by conducting a battle command training program (BCTP) brigade war-fighter exercise in a challenging scenario, designed to portray full-spectrum operations in the contemporary operational environment (COE). Today, the second and third Stryker brigade combat teams (SBCT) are fielded and continuing the process. The Army recognizes that these brigades are the bridge to the future force, through experimentation, lessons learned, and the development of tactics, techniques, and procedures (TTP).

The SBCT organization reflects change, specifically personnel, equipment, and doctrinal changes. It is not clear, at this time, if the balance is correct. It is possible that the organizational changes are more progressive than the doctrinal changes. If the Army is to incorporate an effects-based approach to operations at the tactical level, then it first must correct the current perception of effects at the tactical level, that effects are the business of the fire support community. For example, the SBCT incorporated the fires and effects coordination cell (FECC) into the brigade tactical operations center (TOC). The FECC replaces the brigade fire support cell (FSC) and has an expanded role, which includes the integration of lethal fires, nonlethal fires, and effects. Additionally, the organic field artillery (FA) battalion commander is now the brigade effects coordinator (ECOORD) verses the traditional fire support coordinator (FSCOORD). These organizational changes imply that FA battalion commander and the brigade FSC are the sole provider and coordinating agents responsible for effects.

Brigade Special Text (BST) 3-09.41, *Tactics, Techniques and Procedures for Fires and Effects for Stryker Brigade Combat Team (SBCT) Operations (Final Draft)*, January 2003, is the tactical level manual that supports employment of the FECC and the ECOORD. As currently written, BST 3-09.41 is confusing and contradictory to the concept of effects as described in FM 3-0, *Operations*, and FM 3-90, *Tactics*.

For example, BST 3-09.41 assigns the FA battalion commander as the ECOORD, responsible for fires and effects planning and coordination for the SBCT. Chapter 5 of BST 3-09.41 repeatedly refers to the "Fires and Effects (F&E) Plan" and the "F&E subparagraph (3.c(3)), which constitutes the F&E Plan (synonymous with the Fire Support Plan described in current fire support doctrine)" (2003, 5-4). BST 3-09.41

implies that effects are predominantly the result of lethal and nonlethal fires or the result of information operations, civil affairs, or psychological operations, rather than the conditions or results of action by all the elements of combat power.

In contrast, Chapter 4 of FM 3-0, *Operations*, the Army's keystone manual for operations, addresses effects in relation to combat power saying, "Massed effects are created by synchronizing the elements of combat power" (2001, 4-3). The implication is that all the elements of combat power, that is, firepower, maneuver, protection, information and leadership, contribute to creating effects. This is not an extraneous reference. FM 3-0 goes on to describe the relationship of firepower to maneuver saying, "Firepower magnifies the effects of maneuver . . . although one element may dominate a phase of an action, the synchronized effects of both are present in all operations" (2001, 4-6). Likewise, in the description of mass as a principle of war, there is repeated reference to "concentrating the effects of combat power" and "the effects of different elements of combat power" (2001, 4-13). These FM 3-0 references are consistent with the JFCOM EBO white paper definition of effects, "An 'effect' is the physical, functional, or psychological outcome, event, or consequence that results from specific military or nonmilitary actions" (JFCOM EBO White Paper 2001, ii).

<div align="center">Problem</div>

While some of the concepts of EBO are present in current and past US Army doctrine, there does not seem to be a thread of continuity from strategic and operational doctrine down to the tactical level; the obvious question is, Why? This question is the genesis of the topic, and while it may be worthy of study by itself, it is not the purpose of this thesis to determine why the US Army has not incorporated EBO into its tactical

doctrine, for this presumes that there is, in fact, utility for the US Army to incorporate

EBO. As such, this thesis will largely focus on the question of utility.

<div align="center">Primary Question</div>

Does the concept of EBO have utility at the US Army tactical level, specifically

with respect to the Army vision for the future force operating in the COE?

<div align="center">Context and Setting</div>

To focus the conceptual thought, the thesis will examine utility based on three

conditions. The first condition is the COE. The second condition is the future force. The

third condition is utility at the tactical level of war. Of the three conditions imposed on

the research question, the author assumes that two of the conditions, the COE and the

future force, are, if not inevitable, then at least highly likely.

The US Army will conduct tactical operations in the COE. Some may argue that

the US Army is not likely to go to war against a major regional player with a large

standing mechanized force. The US Army is still highly likely to face the complexities

and challenges inherent in the COE, even if the fight is predominantly a traditional large-

scale mechanized force on force fight. The US Army experience in Operation Iraqi

Freedom is a good example. While the US Army faced the conventional threat of a force

on force mechanized heavy fight between the Iraqi Republican Guard Divisions and the

American 3d Infantry Division, there was the continual presence of challenges and

complexities, which characterize the COE. The numerous attacks of Sadam Fedayeen

guerrilla fighters, attempting to leverage asymmetric capabilities along US lines of

communications, are neither revolutionary nor new to war. The COE recognizes past and

current conditions of the battlefield and describes the trend lines. While the term COE is

<div align="center">4</div>

relatively new, the conditions described by the term are not new, nor are they likely to go away. In fact, the opposite is the case: these conditions will continue and increasingly affect the conduct of war at the tactical level.

The definition of COE is required, in order to understand the impact of the COE on EBO. Joint Publication (JP) 1-02, *DoD Dictionary of Military and Associated Terms*, defines operational environment as "a composite of the conditions, circumstances, and influences that affect the employment of military forces and bear on the decisions of the unit commander (2003, 386)." FM 7-100, *Opposing Force Doctrine, Framework and Strategy,* defines the COE as "the operational environment that exists today and for the clearly foreseeable future" (2003, iv). It is important to note that the COE is not a single operating environment, but rather an operating environment comprised of a combination of eleven critical variables: the physical environment, the nature and stability of the state, sociological demographics, regional and global relationships, military capabilities, technology, information, external organizations, national will, time, and economics (FM 7-100 2003, v).

It is not the intent of this thesis to consider each of the variables and combinations of variables, which comprise the COE. This thesis uses the term COE to describe the general emergence of a more diverse set of threats and challenges, which seek to exploit US weaknesses through asymmetric means, equipped with increasingly modern and dangerous weapon capabilities, and initiating conflict with less warning. The intent is not to ignore the full nature of the COE, but rather to focus the concept, making it manageable for the discussion of EBO.

Some considerations of the COE have important implications for future operations. In the physical environment, enemies increasingly seek to leverage complex terrain, attempting to operate from urban areas. They will do this to offset the US military advantage in precision weapons, sophisticated reconnaissance capabilities, and demonstrated dominance of open terrain warfare. Social demographics will also have tremendous implications. Cultural, religious, and ethnic rivalries, along with refugees and displaced persons, increase the complexity of the battlefield. The trend towards urbanization makes it increasingly difficult to avoid urban operations. Regional and global relationships are becoming much more fluid and unpredictable. Threat military forces will use adaptive asymmetric approaches to negate US advantages in capabilities. Commercial off-the-shelf technology will increasingly influence warfare, especially low-cost, high-payoff technologies. State and nonstate actors can purchase desired capabilities without conducting expensive research and development, which will erode the US technical advantage.

The US military is increasingly information-based. FM 3-0, *Operations*, characterizes information superiority as providing the capability to, "see first, understand first, and act first" (2001, 1-12). While this is an essential capability component of both the current force and the future force, it also highlights the information variable in the COE. The US reliance on information technology is both a strength and a weakness. Potential adversaries understand the importance of information and the potential for information warfare. This will increasingly be a component of the COE. As conflicts move closer and closer to urban areas, combat actions gain increasing levels of scrutiny from the twenty-four-hour global media.

The growing influence and number of nongovernmental organizations willing and eager to become involved in crises is also a trend that will influence the COE. These organizations further complicate the situation with stated and hidden interests, objectives, and agendas and operate outside military and political authority. The presence of such organizations can be beneficial or detrimental to the objectives of the US military, but their presence alone further complicates the operational environment, requiring consideration and coordination.

Many adversaries consider US national will as the strategic center of gravity, vulnerable to direct and indirect attack. This facet of the COE has tremendous implications for the future force and the COE. The perception of most foreign nations is that if an adversary can withstand the initial engagements and draw out the length of the conflict, while causing unacceptable US casualties, there is a good chance US national will can be eroded and the adversary can achieve his desired strategic outcome. Adversaries seek to exploit the temporal domain either through tempo or duration. Adversaries see time as being to their advantage for several reasons. It allows the adversary to adjust the nature of the conflict, adapt to operations, dictate the tempo, leverage asymmetric capabilities, and exploit opportunities. The competition for tempo and time is one of the essential components behind the future force and the need for EBO and other future concepts like RDO.

The final variable that is essential to understand the COE is the emergence of actors and participants on the world stage. Actors include nation-state, nonstate, and third parties. The challenge for conducting operations in the COE is that these actors increase the uncertainty of the operating environment. Similar to nongovernmental organizations,

these actors have stated and hidden objectives or agendas. Examples include transnational corporations, terrorists, criminal organizations, and drug cartels. These actors may be adversaries or they may be friendly or neutral, but their presence in the same area of operations complicates the operational environment by the potential to become adversaries.

The second condition EBO will be measured against is the future force. The US Army is in a period of transformation. While the future is uncertain, some things are highly likely, based on the present. For example, the US emerged from the Cold War as the sole superpower whose diplomatic, economic, informational, and military strength are unequaled in the world today. Because of this, the world community relationship with the US is such that many will resent the US if it does not intervene in conflicts around the globe. At the same time, many will resent the US if it does intervene. The dilemma presents itself as a lose-lose situation for the US, but the likelihood is that in the future, as in the past, the US will intervene when and where it thinks necessary, based on its national interests.

The concepts for the future force address the capabilities needed to operate across the spectrum of conflict and the levels of war in light of the COE. Since the US military cannot be everywhere all the time, it is necessary to outline a future force with the capability to conduct rapid worldwide strategic deployment. This future force must arrive in the area of conflict with sufficient tactical mobility, firepower, protection, leadership, and information to dominate the situation. Regardless of what the future force looks like, the intent for the future force is clear. On this basis, the argument over utility of EBO considers the future force as a condition.

The third condition, the tactical level of war, is really the essential criterion from which to answer the research question. This thesis addresses the first two conditions further in this thesis, specifically describing their essence in detail and deducing the impact on both the tactical level of war and on the concepts that make up EBO. It is the question of tactical utility that is the basis for inquiry. The thesis assumes the likelihood of the US Army pursuing the development of its future force and the likelihood of operating in the COE as valid conditions of the future.

Key Terms

The Webster's New Dictionary of the English Language, defines an effect as, "something brought about by a cause or agent; result, to produce as a result; bring about" (1984, 128). According to the Joint Forces Command (JFCOM) Glossary an effect is, "the physical, functional or psychological outcome, event or consequence that results from specific military or non-military actions" (2003). This definition is consistent with the EBO White Paper Version 1.0.

The JFCOM Glossary also delineates between strategic-, operational-, and tactical-level effects. Strategic-level effects influence activities at the strategic level of war and focus on national and multinational military objectives (2003). Rarely will attacking a single target directly result in the desired strategic effect (US Department of Defense 2003). The limited exceptions to this rule involved such exceptional circumstances as a successful action against a uniquely irreplaceable center of gravity. Operational-level effects influence activities at the operational level of war and focus on campaigns and operational objectives (US Department of Defense 2003). Tactical-level

effects influence activities at the tactical level of war and focus on battles and engagements to accomplish military objectives (US Department of Defense 2003).

The JFCOM Glossary further delineates effects into two principal categories. Direct effects are immediate first-order effects, the results of military actions with no intervening effect or mechanism between act and outcome, and are usually easily recognizable (US Department of Defense 2003). Indirect effects are second- and third-order systematic effects that are the results created though an intermediate effect or mechanism to produce the final outcome, which may be physical or psychological in nature (US Department of Defense 2003). Indirect effects tend to be delayed, may be difficult to recognize, and are often a cumulative or cascading result of many combined direct effects (US Department of Defense 2003).

Limitations and Delimitations

This thesis addresses the concepts and essence of EBO in order to discuss its utility for tactical operations. It will avoid discussing the utility for joint, strategic, and operational levels and assume that there is utility at those levels. The thesis examines several emerging conditions likely to have implications on the conduct of tactical level operations and on the utility of EBO at the tactical level. It will not argue for or against the likelihood of these conditions; it will merely examine the potential impact these conditions will have on the conduct of operations at the tactical level. The thesis addresses the current military decision-making process, specifically looking at the use of commander's intent, and the accepted task, purpose, method, and end state methodology. The thesis seeks to examine the utility of EBO within the construct of the current military

decision-making process (MDMP) at the tactical level and to avoid any suggestion that the current process is inadequate.

Significance

It is imperative the US Army determine the utility of EBO at the tactical level. If there is utility, then the concept requires definition, incorporation, and embracement in US Army tactical doctrine. This thesis recognizes the changing face of warfare and the US Army's efforts to change to meet the needs of future conflicts. Army change requires careful consideration of the COE and the realization that success in future operations will result from joint operations. The complexity of the environment and the uncertainty of the battle space demand the services leverage the synergy of combined capabilities through development of joint doctrine, which is applicable across the spectrum of conflict and the levels of war. This thesis explores the concept of EBO, looks at the Army's future force operating in the COE, and seeks to determine if EBO has tactical utility based on the conditions presented.

CHAPTER 2

LITERATURE REVIEW

<u>Primary Sources</u>

There are five principal sources for interpretation of EBO, the first three

published in 2001 and the other two published in 2002. The first reference is an article by

Brigadier General (BG) David A. Deptula, titled Effects-Based Operations: Change in the

Nature of Warfare, published in 2001. The second reference is a concept paper from the

Institute for Defense Analysis (IDA), titled New Perspectives on Effects-Based

Operations, published in June 2001. The third reference is the US Joint Forces Command

J9 (JFCOM) Effects-Based Operations White Paper, Version 1.0, published in October

2001. Two additional sources, published in 2002, are important because they expound on

the concepts presented in the first three sources and offer thoughts on practical

application.

<u>Deptula, EBO: Change in the Nature of Warfare</u>

In his article, "Effects-Based Operations: Change in the Nature of Warfare,"

General David A. Deptula, a key planner in the successful design and execution of the

master attack plan for Operation Desert Storm and a principal author and advocate of

EBO, describes the execution of the air war during the first Gulf War and the thought

behind the strategy. General Deptula describes the first night of the Gulf War air

campaign to illustrate the importance of an effects-based strategy,

> One hundred fifty-two discrete targets--plus regular Iraqi Army forces and SAM
> sites--made up the master attack plan for the opening 24-hour period of the Gulf
> air war. The Gulf War began with more targets in one day's attack plan than the
> total number of targets hit by the entire Eight Air forces in all of 1942 and 1943--

more separate target attacks than ever before in the history of warfare. (Deptula 2001, 2)

While more than 1,300 offensive air sorties were flown in that first twenty-four-hour period, General Deptula argues that it was not the number of sorties that made the first day of air attacks so important, but how they were planned to achieve specific effects (2001, 2). General Deptula argues that the first Gulf War illustrated the concept of parallel warfare. Advances in information, stealth, and precision weapons enabled US forces to attack target sets in simultaneous rather than sequential methods. Prior to this, plans sought to attack target sets sequentially, first the air defense network, then the command and control centers, then the field force headquarters followed by the field forces.

General Deptula emphasizes that this was new, not simply because it compressed sequential attacks into one simultaneous attack, but because "it exploited three dimensions--time, space, and levels of war--to achieve rapid dominance" (2001, 5). Of particular interest, the plan attacked strategic, operational, and tactical targets simultaneously in order to achieve specific effects. Focusing on the effects desired rather than the destruction of target sets resulted in fewer aircraft being needed, freeing up additional aircraft to achieve other effects. This effects-based approach, along with the technological advantage of the Air Force, enabled the execution of parallel warfare and set the stage for rapid decisive operations (RDO). From this historical look at the execution of the air war during the first Gulf War, General Deptula argues that parallel warfare offers new opportunities for RDO, which exploit time and space in terms of what effects are desired and for what purpose, at each level of war (2001).

General Deptula suggests that the use of force to control rather than to destroy an opponent's ability to act leads to a different approach and potentially a more effective use of available force. This is not an entirely new concept: US Army target value analysis is based on the idea that by understanding the enemy as a system, US forces can identify critical components of the enemy system that if successfully attacked will result in an effect that is greater than merely the destruction of one vehicle. For example, destruction of the enemy's engineer bridging assets may keep the entire enemy tank brigade north of the river, without having to destroy each individual vehicle in the brigade. Deptula states, "Force used to effectively control a system--to achieve specific effects rather than destroy it--may lead to the same strategically relevant results, yet with significantly less force" (2001, 6).

Institute for Defense Analysis: New Perspectives on EBO

The IDA concept paper New Perspectives on Effects-Based Operations expands on the effects-based concept. The IDA paper was a result of the joint staff and Joint Forces Command tasking the Joint Advanced Warfighting Program to undertake a study to help inform the debate on EBO and expand the body of knowledge focusing on the operational level of war. The concept paper looks beyond the relevance to the Air Force and compares the conceptual thought against historical examples, looking for relevance and insight.

There are two key points from the IDA concept paper worthy of consideration. First is the issue of what is different about the effects-based approach to operations. According to the IDA concept paper, most military organizations begin planning with a mixture of rules-based thinking and assumption-based thinking. Rules-based thinking is

the use of doctrine, TTP, and general rules. An example of rules-based thinking is that a three-to-one combat ratio is needed to conduct an attack. Organizations also use assumptions in order to continue planning. For example, "the German fighter defenses will no longer represent a serious threat, once our bomber formations penetrate deep into the Reich" (Deptula 2001, 15). History proves military organizations get into trouble when they cling to preconflict assumptions in the face of contrary evidence. The failure to assess the evidence and adapt operations results in faith- or belief-based operations. The alternative to faith-based operations is to collect, assess, analyze, and ultimately adapt plans, rules, and assumptions to account for new information, results, effects, and outcomes--the essence of effects-based operations.

The second important point is that effects-based thinking is crucial for EBO. Effects-based thinking has four important components. First, it requires the linking of all actions (diplomatic, informational, military, and economic) to the operational or strategic outcome desired. Second, it requires continuous assessment of the required effects and adaptation of plans and actions to the reality of conflict. Third, it requires careful consideration of the actions and operations in terms of second-, third- and nth-order effects. Finally, it requires thinking about the implications and consequences of effects over time. The authors of the IDA concept paper repeatedly make the point that EBO is as much about how the commander and staff think about operations as how they employ military capabilities (Linde et al. 2001, 7).

The IDA concept paper reviews several historical campaigns and makes some interesting conclusions. First, the paper concludes that most campaigns have remained rules based or assumption based. Second, the paper suggests that actions and outcomes

have a complex relationship, in which chance can play a major factor and unexpected effects often are as significant as intended effects. Finally, the historical review suggests that without timely assessment and a willingness to adapt, operations remain belief based (Linde et al. 2001, 34).

In the end, the authors of the IDA concept paper agree that the EBO concept has merit for the operational level of war, across all the services and across the spectrum of conflict. However, they recognize that there are some significant challenges, foremost of which is the conservative nature of military leaders in conflict.

<center>JFCOM EBO White Paper</center>

The concept definition of EBO, as considered by JFCOM, was based upon the following hypothesis,

> If we can anticipate with any degree of certainty how an intelligent adversary should, can or could act and react to compensate for our actions; and if we can plan, execute, assess and adapt our actions in terms of the effects we desire, then we can identify and execute the most effective course of action in bringing about the desired change in the adversary's behavior. (US Department of Defense 2001, 1)

According to the Effects Based Operations White Paper, EBO is "a process for obtaining a desired strategic outcome or effects on the enemy through the synergistic and cumulative application of the full range of military and non-military capabilities at all levels of conflict" (US Department of Defense 2001, 5). Clearly, the emphasis from the JFCOM white paper is that EBO is a process focused on achieving a desired outcome or effect. The white paper goes on to describe the process as a continuous and iterative planning and execution cycle. The essence of the process is evaluation of the enemy as a complex adaptive system of systems. This knowledge of the enemy system enables the commander to determine effects or conditions he needs to achieve to coerce or compel

the enemy. Strategy, planning, application, and execution of actions lead to an assessment based on the desired effects. The assessment of the conditions created against effects-related measures of effectiveness considers how those actions taken to produce effects have or have not contributed to moving the state of the conflict closer to the commander's desired outcome. Finally, success of EBO relies on the ability to adapt based on the intended and unintended results of action (JFCOM EBO White Paper 2001, iii-iv).

While the focus is largely on influencing the moral component of war, it does not ignore the physical component of war. In fact, the concept reinforces the idea that careful selection of high-payoff targets (HPT) can directly influence the physical and indirectly influence the moral components of war. This notion is not a huge departure from current doctrine.

According to the IDA concept paper, the EBO concept is important because it is an enabling concept for RDO. Therefore, it is important to understand the RDO concept in order to place the discussion of EBO in context.

> RDO is a concept to achieve rapid victory by attacking the coherence of an enemy's ability to fight. It is the synchronous application of the full range of our national capabilities in timely and direct *effects-based operations*. RDO employ our asymmetric advantages in the knowledge, precision and mobility of the joint force against an adversary's critical functions to create maximum shock and disruption, defeating his ability and will to fight. (US Department of Defense 2001, 2)

The US Air Force has for some time maintained a capability overmatch that enabled a revolution in military affairs. The combination of strategic reach, stealth, and precision weapons allows simultaneous attack of multiple decisive points and centers of gravity, which previously required sequential attack. EBO focuses resources by

17

identifying critical effects, which enables parallel warfare; and parallel warfare is a critical capability required for RDO.

Primary Source Thoughts

The three principal sources agree on the essence of EBO, its potential for future joint operations, and its utility for full spectrum operations. They generally agree that the concept needs further study and development. All three primary sources understand that traditionally wars were waged to destroy the enemy's military forces, while compelling a positive political outcome. What is absent in these three sources is the issue of utility at the tactical level of war.

Additional Sources

While there are numerous secondary sources that expound on the topic of EBO, they all tend to reference the three previously referenced works. Two additional sources published in 2002, expound on the ideas examined in the three principal sources. These two sources are important because they take the initial concepts and develop the ideas further. The first of these two sources, *Thinking Effects: Effects-Based Methodology for Joint Operations*, was published by the College of Aerospace Doctrine, Research and Education (CADRE) and looks at the methodology of applying EBO in joint operations. The second source, "Effects-Based Operations: The End of Dominant Maneuver," was a US Army War College research project written by Colonel Gary H. Cheek, US Army.

Thinking Effects: Effects-Based Methodology for Joint Operations

Colonel Edward C. Mann III, US Air Force (USAF), was the head of the EBO research team at the Airpower Research Institute in CADRE. He was assisted by Lieutenant Colonel Gary P. Endersby, USAF, and Thomas R. Searle, a doctoral candidate

in military history at Duke University and an Army Reserve major assigned to US Army Special Operations Command.

The CADRE paper addresses the need for a move to EBO on the basis that US military doctrine is currently rooted in the concept of military action based on the conquest paradigm. The conquest paradigm views military action not as the extension of diplomacy but rather the end or the failure of diplomacy. Such military actions are fought by any and all means until victory is achieved. Under this approach, the ultimate goal of ground action is normally the enemy capital, which armies reach through the destruction of the enemy forces and their will to resist. What is significant about the conquest paradigm is its actively hostile reaction to unnecessary political restraints on the use of military force and to politically motivated actions. The paradigm assumes clear and abrupt transitions from peace to war and back to peace (Mann, Endersby, and Searle 2002, 14).

The authors argue that with the end of the Cold War, the conquest paradigm became an almost wholly dysfunctional view of military actions. A quick review of US military operations in Korea, Vietnam, Kuwait, Bosnia, Kosovo, Iraq, and Afghanistan suggest that, at least until a hostile peer competitor appears, there will often be political considerations of more importance than military conquest. Instead, the authors suggest that "military actions in today's geopolitical environment often require considerable restraint, not necessarily using every available weapon and not attacking every possible target but understanding the full political context of all actions" (Mann, Endersby, and Searle 2002, 16).

The CADRE paper goes on to review the historical foundation of EBO and suggests that civilian and military leaders normally have objectives and a desired effect or effects in mind when confronting a crisis or conflict, although they are not always able to articulate them. The authors assert that the destruction of targets or the creation of effects should be viewed as a means to achieving the policy goals or the ends (Mann, Endersby, and Searle 2002, 26). As such, effects must not be an afterthought of the targeting process as a means of establishing success criteria, but rather should serve as the thread of continuity between the policy goals and objectives and the tactical actions required to achieve them.

The paper recognizes the current confusion over EBO and suggests that part of the confusion is because the US military over the past few decades improved the linkage between actions and objectives in the planning process. However, objective-based planning and effects-based planning are different for one major reason. Objectives are what the planning forces want to have happen. In contrast, effects-based planning considers desired and undesired outcomes along with the second-, third- and nth order effects (Mann, Endersby, and Searle 2002, 29).

The CADRE paper offers the following definition of effects: "effects consist of a full range of outcomes, events, or consequences that result from a specific action" (Mann, Endersby, and Searle 2002, 29). From this definition, the paper subdivides effects into direct and indirect effects. It further describes direct effects as first order effects and provides definitions for second and third order effects. It goes on to describe cumulative and cascading effects as the relationship of multiple effects over time. The paper suggests that cumulative effects typically build over time from lower to higher and cascading

effects typically cascade down from higher to lower. The paper also looks at collateral effects as those outcomes that result when something occurs other than intended or effects achieved beyond those for which the action was undertaken.

The paper does a good job of describing and examining the categories of effects as used by the US Air Force, specifically the physical, functional, systematic, or psychological effects, outcomes, events, or consequences as they relate to military actions (Mann, Endersby, and Searle 2002, 37). It is important for planners to understand there is a natural linkage among the different effects. The authors suggest the following example in order to demonstrate this idea,

> A bridge may be physically destroyed. As a result, the bridge is no longer functional, and its lack of functionality degrades the transportation system. Furthermore, the loss of the bridge may have a psychological impact on the adversary, especially if it was one of the primary avenues of escape or retreat in the face of advancing forces. (Mann, Endersby, and Searle 2002, 39)

The CADRE paper also describes tactical, operational, and strategic level effects. The paper quotes Air Force Doctrine Document (AFDD) 2, *Organization and Employment of Aerospace Power*: "The focus at a given level of war is not on the specific weapons used, or on the targets attacked, but rather on the desired effects" (AFDD 2 2000, 2). As such, effects are the tactical, operational, or strategic level outcomes that military actions are intended to produce. The paper provides a useful model (figure 1) showing the fundamental relationships of various effects.

"Effects" are linked to desired outcomes/objectives, exert influence, cause a result and/or trigger additional outcomes. The effects-based lexicon applies across the entire spectrum of engagement.

Direct Effects
1st Order

Tactical/Operational/Strategic

Physical

Collateral   Functional

Psychological

Indirect Effects
2nd/3d Order

Tactical/Operational/Strategic

Functional

Collateral   Cascading

Systematic   Cumulative

Psychological

Figure 1. Fundamental Relationships of Various Effects
(Mann, Endersby, and Searle 2002, 40)

Having provided a foundation for the discussion of effects, the paper then looks at how to apply the understanding of effects towards achieving military objectives. The paper provides great insight for tactical unit planners' approach to operations. Specifically, the authors argue that a proposed course of action will not necessarily result in a single desired outcome. Instead, planners must recognize that "Objectives define an end state that actions are designed to achieve. The objectives themselves can be further defined by a set of conditions, or desired effects, that must be created to achieve each objective" (Mann, Endersby, and Searle 2002, 44). Actions cause effects, some intended, some unintended, but success is a matter of creating the effects or conditions required to achieve the objective. Effects-based planning is a matter of considering the linkage of actions to potential effects and synchronizing the effects which accomplish the objective.

Effects-Based Operations: The End of Dominant Maneuver?

Colonel Gary Cheek, US Army, wrote a fascinating paper while at the US Army War College which explores the theoretical and historical foundations of the EBO concepts with the goal of determining the validity of such operations and the implications for dominant ground maneuver. This literary work is interesting because Colonel Cheek concludes that, "the analytical nature of effects-based thinking is suitable for strategic decision-making, but less applicable at tactical levels where standard operating procedures and hard training are the true determinants of success" (2002, iii).

Colonel Cheek opens his argument by suggesting that senior US Army leaders view the concept of EBO as "another attempt by strategic bombing advocates to line Air Force coffers at the expense of land forces . . . catchy phrases with technological twist to make air power 'unusually seductive' to decision makers" (2002, 1). While this may be true, Colonel Cheek goes on to demonstrate his personal view with the following statement: "Recent efforts by the Joint Advanced Warfighting Program at the Institute for Defense Analysis have 'hijacked' the term by seeking to expand the original concept into the realm of strategic planning" (2002, 1).

Colonel Cheek attacks the Air Force strategic bombing advocates, who suggest that modern technologies of stealth and precision weapons can be decisive when systematically applied against the enemy's center of gravity. Colonel Cheek debunks this idea with the argument that, while joint fires can be effective in coercing the enemy, it ultimately cannot compel the enemy into submission (2002, 9-10). Coercion is only as effective as the enemy allows it to be, and the enemy certainly gets a vote. Compelling

23

the enemy requires bringing him to battle and then defeating him, such that he has no choice but to submit.

Colonel Cheek makes a compelling argument against the airpower strategic bombing advocates and, to his credit, also considers the broader school of thought on EBO. This school is one that looks beyond precision weapons and stealth and instead focuses on decision cycles at the tactical, operational, and strategic levels of war. Colonel Cheek suggests that this different school of thought is a results-oriented or "effects-based" approach as opposed to a "faith-based" approach (2002). He uses the failures of the British and French Armies in their fixation on "élan" or "pluck" of the offense during World War I, even in the face of unsuccessful results (2002). He likewise uses the example of the Eighth Air Force and Bomber Command clinging to its faith that "the bomber will always get through" (2002, 15). The alternate strategy to "faith-based" is the adaptive and results oriented approach. Often solutions to tactical problems are a result of innovative and adaptive leaders finding a method which is effective.

The paper recognizes the potential benefit of effects-based operations versus faith- or belief- based operations, but Colonel Cheek qualifies his endorsement.

> In the final analysis, initiative and effects-based thinking are not incompatible-- effects-based thinking can assist determining the best course of actions to maximize effects on the enemy and minimize collateral effects that detract from desired outcomes. But the environment of effects-based thinking are considerably different at the tactical and strategic levels of war. (Cheek 2002, 16)

To support this qualification, Colonel Cheek suggests that, "thinking about tactical level effects and innovation requires time and experimentation to develop. Rarely is adaptation the product of fragmentary orders or the commander's initiative in combat, but can clearly result from the pressures of war" (2002, 16). While this may or may not be true,

Colonel Cheek supports this claim by citing examples of commanders and soldiers in World War II who faced tactical challenges, identified the problem, reassessed doctrine, tactics, techniques, and procedures, experimented with various ideas, disseminating what worked, and trained in the new technique. Colonel Cheek's evidence actually suggests that success in tactical level combat requires assessing the reality of combat, comparing real world evidence against pre-conflict rules and assumptions, and then adaptation, which is an effects based, rather than faith based approach to operations and counter to his argument.

While Colonel Cheek concludes that there is much work necessary to refine the concept of EBO and define the relevance to the strategic and operational level of war, he also cautions that it is "at the same time a dangerous concept to promote at the tactical level. The analytical nature of effects-based operations makes it foreign to tactics where battle drills, standard operating procedures, and hard training are more important to success" (2002, 17). In his conclusion, Colonel Cheek suggests, "The use of effects-based terminology within tactical doctrine is most likely a smoke screen for no doctrine, tactics, techniques, or procedures" (2002, 17). In order to challenge this thought it is necessary to review current US Army tactical doctrine.

US Army Doctrine

A review of US Army doctrine suggests that the US Army, to some extent, already embraces effects-based thinking and several of the related concepts. According to the Army's capstone manual FM 1, *The Army,*

> The goal of future Army operations will be to simultaneously attack critical targets throughout the area of operations by rapid maneuver and precision fires to break the adversary's will and compel him to surrender. The cumulative effect of simultaneous shaping operations and nearly simultaneous decisive operations will be to reduce an adversary's ability to synchronize his effort and will establish the military conditions for friendly victory-decisive victory. (2001, 37)

This simple passage clearly demonstrates the Army vision and it includes several of the essential components of EBO. While it continues to describe the attack of critical targets (physical domain), it also speaks of breaking the adversary's will and compelling surrender (moral domain). It addresses, "simultaneous decisive operations . . . to reduce an adversary's ability to synchronize his effort." (2001, 37) This sounds a great deal like RDO and disrupting enemy decision-action cycles. It also recognizes and highlights cumulative effects, in the broadest sense. Finally, it addresses the establishment of military conditions for victory.

FM 3-0, *Operations*

A look at FM 3-0, Operations, reveals a similar presence of many of the essential concepts of EBO. For example, FM 3-0 states, "Tactical success is measured by the contribution of an action to the achievement of operationally significant results" (2001, 2-5). Describing end state and military conditions, FM 3-0 clearly emphasizes that at the operational and tactical levels the end state is the conditions that, when achieved,

accomplish the mission. Additionally, conditions are mentioned in the portion dedicated to commander's intent. The commander's intent is a clear, concise statement of what the force must do and the conditions the force must meet to succeed with respect to the enemy, terrain, and the desired end state. All of these references, while not expressly using the term effect, demonstrate the Army's appreciation of results, end state, and conditions achieved through action.

The operations process described in FM 3-0 is quite similar to the EBO process depicted in the principal references on EBO. The operations process consists of a continuous cycle of planning, preparing, and executing, which incorporates assessment throughout the cycle. If the results of the planned actions do not contribute to success, then adaptation is necessary, commanders make adjustments, and the operations process continues based on the knowledge gained.

<center>FM 3-90, Tactics</center>

FM 3-90, *Tactics*, focuses on the employment of available means to win in combat. FM 3-90 introduces the basic concepts and control measures associated with the art of tactics and provides guidance in the form of combat-tested concepts and ideas. Appendix B, Tactical Mission Tasks, provides a list of tasks used by commanders to direct the actions of their subordinates. What is instructive is the first sentence of the introductory paragraph of Appendix B, "The tactical mission tasks in this appendix describe the results or effects the commander wants to achieve" (FM 3-90 2001, B-1). The paragraph goes on to explain that the tasks focus the "what and why of a mission statement." The "what" is an effect that is normally measurable and the "why" provides the mission's purpose or reason.

The definitions provided by Appendix B often include results or effects in relation to the enemy, terrain, or friendly forces. For example, 'block' is a tactical mission task that denies the enemy access to an area or prevents his advance in a direction or along an avenue of approach (FM 3-90 2001, B-13). 'Block' is also an engineer obstacle effect that integrates fire planning and obstacle effort to stop an attacker along a specific avenue of approach or prevent him from passing through an engagement area (FM 3-90 2001, B-13). Successful execution of the tactical task block accomplishes the commander's desired outcome by creating the desired effect on the enemy. Not all tasks describe an effect on the enemy; some describe an effect on the terrain or the friendly force.

What is significant is that the US Army tactical level doctrine already seems to recognize the importance of directing action in terms of the results or effects to be achieved. The commander's use of effects-based tactical mission tasks fosters initiative in his subordinates, while keeping them in line with his intent. The commander does not need to tell his subordinates how to achieve the effect; he merely describes the effect, or the desired outcome. The tactical mission task conveys to subordinates what effect they are to achieve and why.

BST 3-09.41, *Fires and Effects for Stryker Brigade Combat Team Operations*

Review of the brigade special text BST 3-09.41, Fires and Effects for Stryker Brigade Combat Team Operations, gives readers the impression that integration of 'effects' is largely the function of the fire support battlefield operating system (BOS). The term 'effect' is casually used and intermixed with traditional fire support and field artillery terms. On this basis it is not incompatible with EBO, but it confuses rather than clarifies the relationship of effects, tactical actions, and the elements of combat power.

For example, in a section dedicated to targeting to support information operations, there is a description of targeting objectives--targeting objectives describe the 'effects' of target attack on the adversary. Traditional targeting objectives are limit, disrupt, delay, divert, destroy, and damage (BST 3-09.41 2003, 6-15). The section goes on to describe targeting 'effects' or what artillerymen have traditionally called 'effects criteria:' harass, suppress, neutralize, and destroy (BST 3-09.41 2003). The casual use of the term effect includes the introduction of information objectives: destroy, degrade, disrupt, deny, deceive, exploit, and influence, all of which, describe the desired 'effects' of information operations (BST 3-09.41 2003). The manual then introduces the obstacle 'effects' of disrupt, fix, turn, and block (BST 3-09.41 2003, 9-14). There is a section on massing effects, which provides insight and at the same time more confusion.

> The SBCT shapes and decides the battle by massing the effects of overwhelming combat power. Effects should be synchronized in time and space and be rapid and unexpected so that they break the enemy's offensive tempo and disrupt his attack. The commander employs integrated ISR to shift maneuver forces, fires, and effects so that they are repeatedly focused and refocused to achieve decisive, destructive, and disruptive effects upon the enemy's attack. The commander must be bold in achieving overwhelming combat effects at the decisive point by employing SU to take acceptable risk in other areas. (BST 3-09.41 2003, 9-4)

This passage suggests that all of the elements of combat power, that is, leadership, firepower, maneuver, protection, and information, provide valid contributions to 'effects.' However, it then speaks of shifting maneuver forces, fires, and effects as though effects were a BOS requiring synchronization versus the results of actions executed by the elements of combat power. This is also evident in passages that refer to lethal fires, nonlethal fires and effects, and direct fires. The questions left in the reader's mind are, What are these effects that are distinct from direct and indirect lethal fires and nonlethal fires? Are they just the result of information operations? Do they include the obstacle

29

effects? If all the elements of combat power contribute to effects, then why is the field artillery battalion commander, in his new role as the ECOORD, not responsible for engineer obstacles and the effects of maneuver? Likewise, why is the FECC not really in the business of integrating battlefield effects?

In defense of BST 6-09.41, it is a working special text, periodically updated based on the lessons learned by the SBCTs. In addition, it could be argued that the intent of the manual is to convey to the fire support community its important role in coordinating the effects of its tactical actions with the effects of the other elements of combat power. However, this defense would beg the question, Then why isn't there a brigade special text, BST 3-34.41, *Engineer Obstacles and Effects for Stryker Brigade Combat Team Operations?*

<u>Comments</u>

The review of current literature on the subject of EBO demonstrates two general views. The first view narrowly focuses on the capabilities and potential of aerospace power in future conflict. Colonel Cheek's work is likely a reaction to this school of thought. The second, broader view, describes EBO as an approach to operations based on starting the planning process with the conditions or effects required to achieve success, then selecting tasks and actions based on their causal relationship towards creating the desired effects or conditions. This broader school of thought recognizes the potential for productive, neutral, or counterproductive effects and seeks to leverage the experience and knowledge gained to adapt subsequent actions.

Review of US Army tactical doctrine suggests that US Army forces largely execute objective-based operations, linking tactical tasks to objectives and objectives to

the commander's desired end state. However, the review also suggests that pragmatic leaders use both the adaptive approach to operations and effects to visualize, describe, and direct action. Effects and conditions are routinely articulated in commander's intent, commander's guidance, tactical mission tasks, engineer obstacle effects, essential fire support tasks, and information operation effects. The US Army's capstone operational manual, FM 3-0, emphasizes that combat operations require commanders to mass the overwhelming effects of combat power (firepower, mobility, protection, leadership, and information) at the decisive point and time. Unintentionally perhaps, the US Army recognizes the relevance of effects.

The obvious gap in knowledge of EBO remains at the tactical level. Research is required to determine the utility of EBO, from the broader perspective, for tactical units which will be engaged in future operations in the contemporary operating environment. That is the purpose of this thesis.

CHAPTER 3

RESEARCH METHODOLOGY

The purpose of this chapter is to describe the research methodology used to determine if the concepts of EBO have utility at the tactical level for the future force operating in the COE. Based on the review of literature it is apparent that current planning and execution is largely objectives-based. The issue to be determined is whether an effects-based approach provides additional benefit to tactical level commanders over the objectives-based approach.

In order to determine the answer to this question, it is necessary to answer the following secondary questions:

1. What is unique to the tactical level of war?

2. How will the COE impact operations at the tactical level of war?

3. What will be important facets of the future force?

The secondary questions should identify important criteria for use in screening and evaluating the two competing approaches. This chapter will focus on identifying the factors, qualifying them, and explaining why they are important in comparing the two approaches to operations. With the secondary questions answered, then it is necessary to compare the two approaches based on the criteria identified to determine which is best. This will be the focus of the analysis chapter.

Tactical Level of War

According to JP 1-02, *DoD Dictionary of Military and Associated Terms*, the tactical level of war is: "The level of war at which battles and engagements are planned and executed to accomplish military objectives assigned to tactical units or task forces.

Activities at this level focus on the ordered arrangement and maneuver of combat elements in relation to each other and to the enemy to achieve combat objectives" (JP 1-02 2001, 520). The tactical level of war consists of the execution of missions and tasks based on, "the ordered arrangement and maneuver of units in relation to each other, the terrain, and the enemy to translate potential combat power into victorious battles and engagements" (FM 3-0 2001, 2-5). What, then, is unique about the tactical level of war? To answer this question, it is useful to place the tactical level of war in context. According to FM 3-0, the levels of war clarify the links between strategic objectives and tactical actions. The manual points out that the levels of war are not discrete, there are no "finite limits or boundaries between them" (2001, 2-2). The strategic level of war focuses on the translation of national policy into national strategic military objectives. Military strategic planning consists of taking national policy goals and translating these goals into strategic military objectives and allocating forces and resources towards the attainment of approved strategic military objectives. The operational level of war consists of designing campaigns and major operations through the arrangement of forces, battles, and engagements in space and time to accomplish operational objectives and/or the strategic military objectives.

The tactical level of war is unique from the strategic and operational level due to the potential requirement for friendly forces to conduct close combat to accomplish their mission. At the tactical level, forces use direct and indirect fires in conjunction with maneuver to defeat or destroy enemy forces and to seize or retain ground. Tactical level missions and actions are conducted in relatively short duration compared to the time required to execute operational level actions and strategic level actions. Additionally,

organized to sustain combat losses, tactical level forces continue to fight until the purpose of the operation is accomplished. Since the tactical level of war requires forces to determine the outcome of engagements and battles through close combat with the enemy, tactical forces often face a continually changing situation. Therefore, they must be prepared to deal with uncertainty by anticipating enemy actions and building flexible, adaptive plans to deal with the changing situation.

Based on the unique nature of the tactical level of war, the following criteria should be considered in evaluating the objectives-based and effects-based approach to operations. First, the approach should enable clear visualization, communication, and understanding of what actions should be taken and why. Next, since tactical actions are conducted in close combat, the approach should foster efficient use of resources and combat power. Next, the tactical level of war determines the outcome of battles and engagements. As such, effectiveness is essential. Without tactical success (effectiveness), operational and strategic success, although possible, seems unlikely. Next, success at the tactical level requires careful synchronization of firepower, mobility, protection, information, and leadership in order to destroy the enemy, occupy terrain, and conclusively decide the outcome of close combat. It is therefore necessary to evaluate any new approach to operations against the requirement to synchronize the application of combat power. Finally, since close combat is subject to uncertainty, enemy action, friction, and chance, it is necessary to evaluate effects-based and objectives-based operations against the requirement for tactical units to modify execution to account for the changing situation. Any new approach to operations must facilitate flexible, adaptive execution under the pressure of time and enemy actions.

Contemporary Operating Environment

Because the COE will affect future operations the evaluation of the two approaches to operations would be incomplete without considering its impact at the tactical level. As a reminder, the COE is an operating environment comprised of a combination of eleven critical variables: the physical environment, the nature and stability of the state, sociological demographics, regional and global relationships, military capabilities, technology, information, external organizations, national will, time, and economics (US Department of the Army, FM 7-100 2003, v).

How will the variables that make up the COE affect the tactical level of war? Ultimately, the result is an increase in uncertainty. Tactical units will still be required to deploy, fight, and win tactical actions to determine the outcome of battles and engagements. However, what is different is that increasingly the military is being deployed into military operations other than war (MOOTW) and this is likely to continue in the near future. The devolution of the bipolar security environment and the lack of a peer competitor in the near future mean that the US military will continue to operate at the lower end of the spectrum of conflict, while prepared to operate at the higher end. As such, evaluation of operational approaches must be effective in both war and MOOTW.

Next, the tactical situation for both war and MOOTW will consist of a combination of an empty battlefield and a crowded battlefield. The enemy, or more appropriately the threat, will be increasingly dispersed and hard to find, as he will be dispersed to avoid detection by US intelligence, surveillance, and reconnaissance (ISR) platforms and the effects of US weapon systems, creating the perception of an empty battlefield. At the same time, the battlefield will be crowded, as the threat positions forces

amongst the civilian population, again in order to frustrate US acquisition and attack. Additionally, paramilitary forces, nongovernmental organizations, criminal gangs, displaced civilians, refugees, and media organizations will all crowd the battlefield. The previous delineation of friendly, neutral, and enemy forces is probably insufficient, for there is now a spectrum of personalities and organizations, each with varied objectives, perspectives, agendas, and leanings. Therefore, tactical units must consider the reaction of not just the enemy, but also the other participants and spectators in the battlespace. Failure to account for the impact of tactical actions on the other personalities and organizations in the area of operations can lead to further complication and challenge to mission accomplishment at all levels of the conflict. The challenge of the empty and crowded battlespace, along with the broad spectrum of potential participants, requires an approach to operations that recognizes this challenge and the impact on tactical planning and execution. Analysis of an approach to operations must therefore provide consideration of tactical actions on all the elements of the expanded battlespace, not just friendly, enemy, and terrain.

The perception that adversaries can erode US national will and achieve their desired strategic outcome by extending the duration of conflict and causing casualties is a perception that may or may not be valid. The perception is significant enough to influence enemy strategy, and challenge tactical units. US forces will continue to face real and perceived pressure to succeed quickly with minimal US casualties. This component of the COE requires an approach to operations which is efficient in terms of time and personnel while at the same time being effective in achieving the strategic military objectives.

What is notably different about the COE is the concept of compression. Offense, defense, stability, and support operations are compressed in time and space. Tactical, operational, and strategic levels of war are compressed. For example, tactical actions in the COE impact not just on the enemy and the terrain, but also on the infrastructure, the civilian population, other actors and spectators in the environment, the media, US military and civilian leadership, and the US public. Information technology appears to have compressed time, information, and the battlespace. The impact of compression and the requirement to dominate the information environment demand an approach to operations which accounts for the examination of tactical actions in light of the actual and, perhaps more importantly, the perceived impact on the situation.

Future Force

The final factor considered is the future force. A look at the future force provides a description of the capabilities and characteristics the US desires for the execution of future operations. Assuming the US correctly anticipates the nature of future operations, these characteristics should provide useful insight on evaluation criteria for comparing the effects-based and objectives-based approaches to operations.

According to the Training and Doctrine Command (TRADOC) black book, *The Army Future Force: Decisive 21st Century Landpower,* published August 2003, "The primary goal of Army Transformation is the development of the future force--*a strategically responsive, precision maneuver force, dominant across the range of military operations"* (2003, 2). TRADOC identifies the ultimate measure of success for the future force as "*its contribution to future joint operations, in concert with interagency and multinational partners*" (2003, 2).

According to TRADOC, the US Army expects several operational benefits from the future force. First, the Army expects a move from stove-piped, staff-centric command and control to joint-integrated, network-centric battle command, which enables decision superiority and self-synchronization. Next, the Army expects a move from fighting after force buildup at major air and seaports (time-consuming force projection) to immediate employment of forces arriving rapidly through multiple austere entry points. Additionally, the Army expects a move from sequential, contiguous, linear operations to simultaneous operations, distributed throughout the joint operations area, within a nonlinear framework. The Army also expects a move from attrition-based campaigns with massed formations to direct attack of centers of gravity with precision effects and defeat through disintegration. The future force must move from gaps in situational understanding and uncertain intelligence resulting from direct contact and observation to global, robust, near real-time joint intelligence, sensor networks integrated from space-to-mud, which will provide improved situational understanding. The future force will expect a move from large logistics structures with large forward footprints to reduced logistics structures and small footprints resulting from reachback and distribution-based sustainment. Finally, the Army expects a move from effective combined arms operations to greater synergy of integrated joint operations (US Army Training and Doctrine Command 2003, 3-5).

With this conceptual framework, there are three relevant evaluation criteria useful for the evaluation of the objectives-based and effects-based approaches to operations. First, any new approach to operations must promote synchronization. Next, the approach should foster distributed simultaneous operations within a nonlinear framework. Finally,

the approach to operations should foster not only combined arms integration but also greater synergy with joint, multinational, and interagency operations.

<div align="center">Qualification</div>

Consideration of the conditions provides the reason these factors are important in comparing the two approaches to operations. However, prior to conducting comparison and analysis it is necessary to qualify the criteria. This qualification of the criteria should enable comparison and facilitate subjective judgments from which conclusions can be drawn.

1. Clear Visualization: How well does the process facilitate the ability to observe, orient, decide, and act within the intent of the commander? The art of battle command rests on the ability of commanders to visualize the current situation, understand the context of the problem, visualize and describe the future situation, and direct action towards achieving the desired outcome. The art of successful execution rests on well-trained units which clearly understand and share the commander's visualization of the impending battle and are armed with the confidence to act even when the situation presented varies from the situation expected. Clear visualization fosters faster decision action cycles.

2. Efficient Use of Resources: Does the process focus resources on the minimum number of tasks required to achieve success? Evaluation of the two approaches must consider the actions required to get from the current state of conflict to the desired future state. The approach which best focuses on the minimum tasks required and provides emphasis on what is important to success while minimizing the importance of tasks which have marginal impact on achieving the desired outcome is most desirable.

3. Effective Use of Resources: Does the process focus the use of resources on the achievement of results desired and minimize counterproductive efforts? Having identified the tasks which move the situation from its current state to its desired future state, the approach must allocate resources toward the accomplishment of the tasks to ensure that the task effectively achieves the desired result.

4. Synchronization: Which process better arranges tasks and actions in time, space, and purpose sequenced to achieve desired results? Having identified the tasks and resources required, the approach must foster the appropriate sequencing of actions based on the results desired and when the results are needed in order to have the desired impact on the situation. Synchronization is not merely the sequencing of *tasks* and *actions* in the order for which they need to be accomplished. Synchronization is the arrangement of *results* in time, space, and purpose in the order for which they need to be achieved.

5. Flexible and Adaptive Execution: Does the process encourage initiative, enabling subordinates to adapt and alter execution based on the continually changing situation? Any good plan accounts for flexibility in order to overcome the changing tactical situation. However, while the conditions for success are established during planning, success is attained during execution. As such, the two approaches must be measured against the decisive execution phase rather than the conceptual phase of operations.

6. Full Spectrum of Conflict: Does the process work across the spectrum of conflict, from peace through conflict and into war? While, the army must continue to be in the business of fighting and winning land combat during war, it must also be prepared

to operate at the lower end of the spectrum of conflict. This criterion compares the two approaches against the requirement to operate across the spectrum of conflict.

7. Assesses the Results of Actions on Entire Battle Space: Does the process anticipate, account for, and assess the potential and eventual results of actions against the desired results on all the elements of the battle space? The process should consider not just the enemy force, the friendly force, and the terrain, but also the infrastructure, the media, and the other actors and spectators who see and occupy the battlespace. This criterion looks at the two approaches and evaluates the effectiveness of the approach at considering and accounting for the impact of the entire battlespace, not just the enemy, friendly forces, and terrain.

<div align="center">Decision Matrix</div>

This thesis compares the two approaches to operations based on qualitative analysis. The decision matrix (table 1) provides a framework from which to evaluate the approaches, providing structure for analysis in the absence of quantifiable evidence. The matrix is not an attempt to apply a mathematical, scientific methodology to a subjective topic, but rather an attempt to structure the analysis and illuminate the discussion. This method of analysis suits the topic because it provides a simple and clearly understandable format for organizing the thought and serves to highlight analysis and conclusions.

Table 1. Blank Decision Matrix		
Evaluation Criteria	Objectives-Based Operations	Effects-Based Operations
Clear visualization		
Efficient use of resources		
Effective use of resources		
Synchronization		
Flexible and adaptive execution		
Assesses the results of actions on entire battle space		

CHAPTER 4

ANALYSIS

The evaluation criteria provide a useful framework for the analysis of the two approaches. Comparison of the two approaches is made on a subjective basis, but the analysis is still likely to enlighten the discussion of EBO at the tactical level. Before comparing the two approaches against the criteria, it is worth describing the two approaches in general terms.

<u>Objectives-Based Approach</u>

The objective-based approach links tactical actions to operational objectives, which are tied to campaign and ultimately strategic objectives (figure 2). FM 3-0 states, objective is a principle of war, "at the operational level and tactical levels, objective means ensuring all actions contribute to the goals of the higher headquarters. . . . When undertaking any mission, commanders should have a clear understanding of the expected outcome and its impact" (FM 3.0 2001, 4-12).

Tasks   Operational   Campaign   Strategic
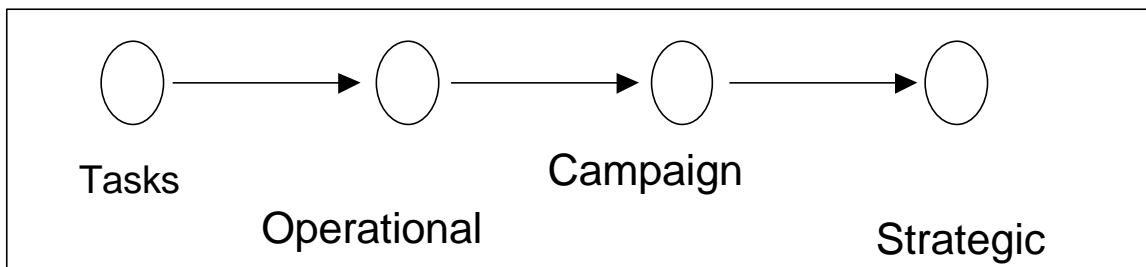
Figure 2. Objectives-Based Approach

Generally, tasks necessary to achieve objectives at one level become objectives for subordinate levels. For example, during Operation Market-Garden, the operational objective of crossing the Rhine River near Arnhem, required several tasks to achieve the operational objective. Securing bridges in Nijmegen, Grave, Veghel, and Son were tasks required to achieve the operational objective. Higher headquarters gave these tasks to subordinate units as their objectives. The task provided direction as to the action to be accomplished. This process provided clear communication of what action is expected by the subordinate tactical unit.

Tasks assigned to subordinates are given meaning by also providing the purpose or the reason why the task is important. Figure 3 shows the linkage of task and purpose of each unit.
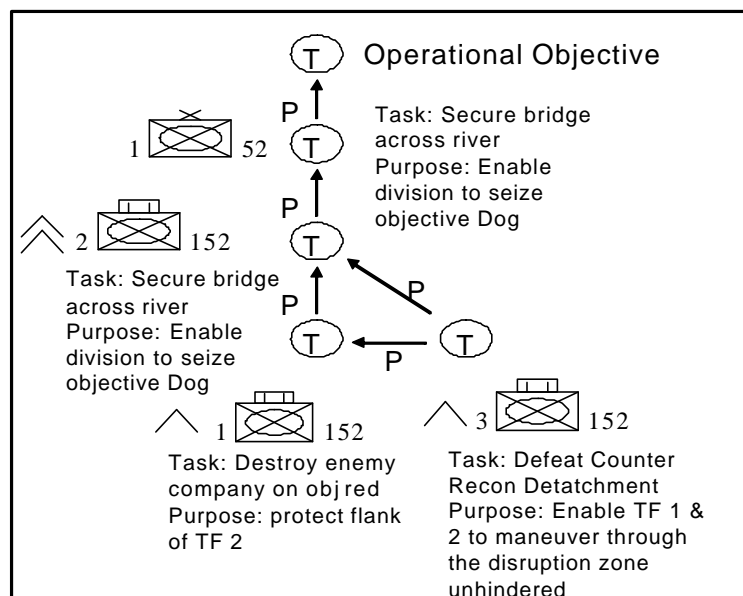
Figure 3. Nesting Diagram

This combination of task and purpose is the minimum sufficient information for giving direction to subordinates. The purpose provides the reason for accomplishing the assigned task and is usually described in terms of "why" the task is important and "how" the action contributes to the overall objective.

For example, the brigade headquarters directs task force (TF) 1- attack to destroy enemy company on objective red, in order to protect TF 2's western flank. TF 2 is directed to seize a bridge in order to enable the brigade to continue operations north of the river. The brigade objective is tied to other division objectives and perhaps to corps objectives. The nesting of task and purpose for each unit shows the organization of actions and the purpose of each task communicates the linkage of each individual task to the tasks of the other units. The task directs action and the purpose communicates the linkage and reason for the task in relation to the other tasks. The nesting of task and purpose helps ensure that all actions contribute to the goals of the higher headquarters.

In objectives-based operations, the purpose is generally more important than the specific task assigned. Units can modify the task as necessary to accomplish their assigned purpose, as is often the case during close combat in a fluid tactical situation. For example, TF 1 is tasked to destroy the enemy company on objective red, but the purpose, protect the flank of TF 2, is ultimately more important than the specific task assigned. It may be possible to achieve this purpose with a different tactical mission task, for example, fix or contain.

Units can accomplish the assigned task, but ultimately may fail because they do not achieve the purpose. For example, TF 1 could destroy the enemy on objective red but fail to protect the flank of TF 2. It is also possible for units to accomplish the assigned

task and purpose, but execute a method that is counterproductive to the operational or strategic goals desired. TF 1 could destroy the enemy on objective red, protect the flank of TF 2, but destroy the bridge in the process. To overcome this eventuality commanders establish procedural boundaries. These procedural boundaries include graphic control measures, maneuver boundaries, fire control measures, and rules of engagement, which detail acceptable and unacceptable actions (methods).

For example, a mounted patrol unexpectedly receives direct fire from an unidentified enemy in an urban setting. There are several potential actions and methods the patrol could take to deal with the unexpected situation. The unit could hold its fire and increase its speed, it could return small arms fire, it could potentially dismount the vehicle and assault the suspected enemy position, it could throw smoke, it could call in fire support, etc. Each action and method has potentially different results, not just at the tactical engagement level, but potentially at the operational and strategic level as well. In the heat of the moment and in the absence of additional guidance, the unit must do something. The situation may be complicated by the fact that the unit's directed task and purpose might not address the specific situation faced by the unit. The patrol leader now must fall back on his judgment, asking, "What is the right thing to do now?" The unit uses instinct, battle drills, standard operating procedures, rules of engagement, the law of land warfare, common sense, and, hopefully, the commander's intent to understand the situation, decide, and act appropriately. While few would deny this unit the right to self-defense, the use of close air support or artillery may be a less than optimal solution to the situation at hand, based on the desired strategic outcome.

While some will argue that commander's intent fosters initiative in subordinates, too often commander's intent follows the format of purpose, key tasks, and end state. Key tasks identify the critical actions (task centric) which move the conflict from the current state to the desired end state, and end state is described in terms of what the friendly force looks like in relation to the enemy and the terrain. Additionally the task centric focus of commander's intent provides little guidance in situations that fall outside of the realm of the key tasks identified or the end state, which tends to describe a relatively static result, at the end of the operation.

While tasks are important for directing action and purpose is important for providing the reason for the assigned task, this model is incomplete; a complete model includes a task, purpose, method, and effect, as shown in figure 4. Given a task and a purpose, units execute by some method, which ultimately results in some effect(s). The task provides what action is to be done, the purpose provides why it is to be done, method describes how the task is to be done, and effect is the result or the outcome of the task completed.

Task: what action
+
Purpose: why
+
Method: how
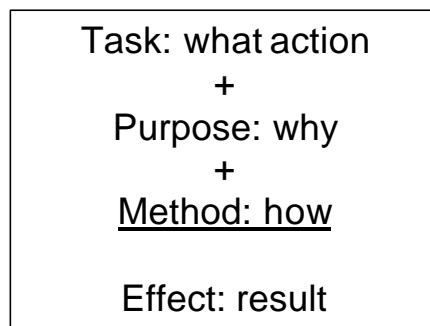
Effect: result

Figure 4. Task Model

It is important to make a distinction between the purpose for the task and the effect. Obviously, the purpose of the task is to create the desired result or effect. This would suggest that the purpose and the effect are the same thing, but that is not the case. Purpose provides the reason why this task needs to be accomplished. It describes the unique contribution that this task provides for moving the situation closer to the desired results. Purpose gives weight to the importance of the task.

The result or effect is different from the purpose. The effect describes the successful condition, which comes about because of taking the action. In mathematical terms the effect is the sum or result of the equation. The full equation would look something like task + purpose + method + other factors = result or effect. The trick for planners is to assemble a combination of task, purpose and method, which accounts for and influences the other factors in the environment sufficiently to cause or create the desired solution, result, or effect.

The objectives-based approach tends to be linear and sequential. Accomplishment of this task and purpose enables an adjacent unit to accomplish its assigned task and purpose, the sum of which is the achievement of the brigade objective. Multiple brigade objectives achieve the division objective; division objectives achieve the corps objective, etc., ultimately achieving the military strategic objectives. The sequential nature of the tasks, when accomplished, achieves the tactical objective.

<div align="center">Effects-Based Operations</div>

The same model of task, purpose, method, and effect is easily applied to the effects-based approach to operations. What is different about the effects-based approach is subtle and easily overlooked. Rather than starting planning with the linear sequence of

<div align="center">48</div>

activities which will move the situation from the current state to the desired future state, effects-based planning starts with the future state and identifies the effects or conditions which define the goal or objective. This is not done in terms of what tasks are to be accomplished but rather in terms of what effects are desired. Again, this is a subtle but important distinction. Effects are the results of action, not the actions themselves. Tasks performed for some purpose and by some method, may or may not create the desired effect, and therefore may or may not move the situation closer to the desired result.

Figure 5 visually depicts the relationship of tasks, effects, and objectives. The objective is defined by the conditions or effects that must be met in order for the objective to be achieved.
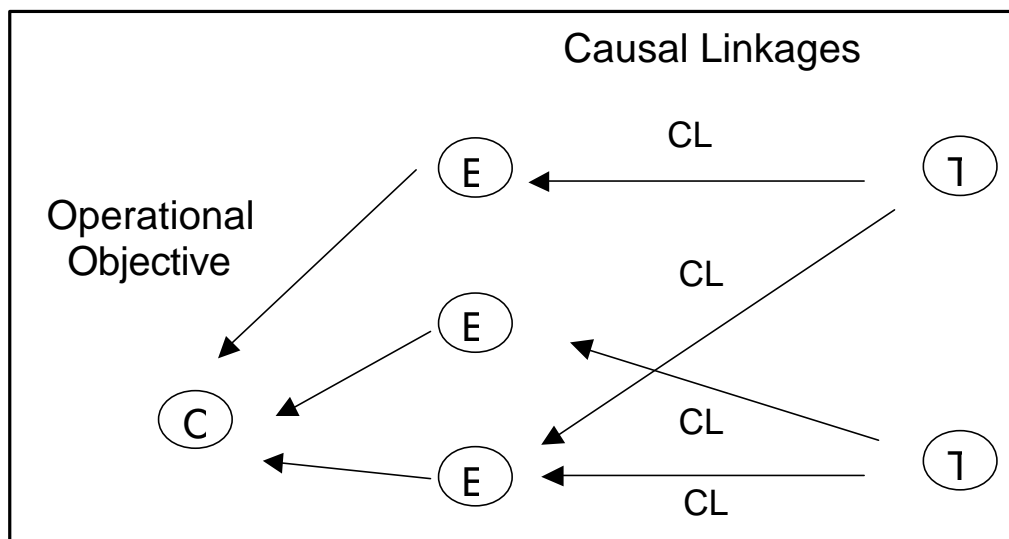
Figure 5. Task-Effect-Objective Linkage
(Adapted from Mann, Endersby, and Searle 2002, 49)

With the effects described, tasks are then identified, which have causal linkages to the desired effects. Note that the tasks in the figure have causal linkages to more than one effect. This is often the case. In fact, the tasks may have causal linkages to other collateral effects, unintended or even undesirable.

By recognizing the linkage of tasks to effects, it becomes evident that each task has multiple results or effects. As mentioned before, destruction of a bridge has a physical result (effect), but it may also have a functional effect, a systematic effect, and even perhaps a psychological effect. Denying this essential relationship ignores both collateral effects and the second- and third-order implications of action. Each of the tasks still follows the model of task, purpose, method, and effect, but planning accounts for the potential outcomes and impacts of tactical actions more thoroughly than the objectives-based approach by considering multiple consequences resulting form the action.

Effects-based operations start by determining the results or effects desired. Once established, the appropriate combinations of actions (task, purpose, and method) are identified which have a high likelihood of achieving the desired effect, while methods and tasks that are likely to be counterproductive towards achieving the desired results are discarded. Focusing on effects, helps delineate appropriate tasks and methods.

Evaluation Criterion

Clear Visualization

Does the process facilitate a subordinate's ability to observe, orient, decide, and act within the commander's intent? The objectives-based approach to operations provides a baseline. While the approach forces commanders to link tactical actions to objectives, it leaves a margin for error. First, there is the problem of methods. The objectives-based

approach fosters mission command through the direction of task and purpose, coupled with the discretion of subordinates to determine the method. This is not entirely wrong, except that it is task centric rather than result oriented. By focusing on the task rather than the results or effect desired, there is the potential for subordinates to focus on the task at the exclusion of the purpose. There is also the potential for subordinates to accomplish the task and purpose but do so by a method, which is counterproductive to the effects desired. This presents the commander with a dilemma. How do I foster initiative in my subordinates and ensure that they execute a method that is suitable and acceptable to the effects desired without directing the method? The answer is through extensive rules of engagement dictating what to do and what not to do in every conceivable situation, a marginal but necessary solution. Failure to solve this dilemma results in subordinates unable to observe, orient, decide, and act within the commander's intent.

The effects-based approach takes this baseline and provides a significant improvement. If the commander and the staff think in terms of the effects required to achieve the objective, they can visualize, describe, and direct subordinates based on the results, outcomes, and effects required. This approach still facilitates mission command, but it does it better than the objectives-based approach because subordinates don't measure their success against accomplishment of the task, but rather in terms of how well they have achieved the effect or results. Subordinates, focused on achieving the results or effects directed by the commander rather than executing tasks, are empowered to deal with fleeting opportunities and unexpected obstacles with minimal guidance, consideration of key tasks or reference to rules of engagement.

The approach still provides the commander and the staff the latitude to be as directive or as mission command oriented as needed. Task and purpose can still be used to direct action, but only after determining the effects required and considering the causal linkages of the tasks to the desired effects. Subordinates, given the results or effects to be achieved, are empowered to use initiative and exploit opportunities by altering the task or method. In doing so, they are inherently acting within the commander's intent, because they are taking action based on the likelihood of moving the situation closer to the effects or conditions directed by the commander. If one of the potential actions is likely to be counterproductive either in the task itself or in the method, then the subordinate knows, even in the absence of direction from a higher authority, the action is not within the commander's intent. The result is units and individuals better able to observe, orient, decide, and act within the commander's intent.

Efficient Use of Resources

Does the process focus resources on a minimum number of tasks required to achieve success? The objectives-based approach to operations fosters efficient use of resources by nesting tasks. The nesting diagram visually depicts tasks and purposes to ensure that lower-level tasks support adjacent or higher-level tasks. By using the nesting diagram, it clearly becomes evident if a task has been identified which serves no significant purpose. However, the objectives-based approach is overly task-centric. Tasks are derived from the mission analysis process, where the staff pulls out specified, implied, and essential tasks from the operation order. The staff then develops a course of action (COA) which further assigns additional tasks to subordinate units. The successful execution of all these tasks ultimately achieves the unit mission, if the situation does not

change significantly from that which is expected and war-gamed. If the situation changes, some, perhaps many of the tasks directed no longer apply. Now the unit must adapt and retask if it is to be successful. If a subordinate unit's task and purpose no longer applies, it then refers to commander's intent for guidance and direction in the heat of combat. Unfortunately, commander's intent is also task-centric, listing key tasks. The potential result is units executing unnecessary tasks that do not necessarily contribute to achieving the results desired.

The effects-based approach, however, is effects-centric. The commander and his staff base their planning on the conditions or effects required to accomplish the directed objective. The commander describes the required effects in his intent and planning guidance. The staff analyzes effects and recommends tasks based on their causal linkages towards achieving the required effects. The staff will still analyze the order from higher headquarters and identify specified, implied, and essential tasks, but they will do so with the understanding that the effects of the higher headquarters are of greater importance than the tasks culled from the order. The list of tasks will be considered based on the impact they will have on the situation. Tasks with positive causal linkages towards the tactical, operational, and strategic effects are worthy. Tasks with negative linkages are likely to be counterproductive to the operation. If the tasks are still necessary for the execution of the operation, then planning must account for the potential negative impact or the collateral effects that may be counterproductive to the desired effects or conditions.

During execution, the effects-based approach provides opportunities for increasing and decreasing the number of tasks executed. Subordinates focus on the effects or results desired rather than the specific tasks to be accomplished. As the

53

situation changes, subordinates may recognize that the effects are achieved prior to completion of the task. The result is additional combat power available to take other actions that contribute to achieving the commander's desired effects. For example, if the enemy company on objective red displaces away from the bridge site when TF 1 approaches, the flank of TF 2 is not threatened. The situation is different from that which is expected and the assigned task and purpose are of limited value. TF 1 recognizes that the effects or conditions required are already achieved and the TF is available for other actions.

Likewise, the subordinate may see that the task and action of his unit is not achieving the effect required. The subordinate can and should modify the method or even the task to better affect the situation and create the effects directed by the commander. If attacking to destroy the enemy on objective red is not actually protecting the flank of TF 2, because an enemy force is seen repositioning to threaten the approach to the bridges, then the commander can and should alter the task and or the method such that the effects or results are achieved. If the effects or results desired are the enemy unable to interfere with TF 2 prior to it seizing the bridge, then TF 1 might consider changing the task from attack to destroy enemy on objective red, fix enemy on objective red, and use the excess combat power available to delay, fix, disrupt, or block the enemy force seen repositioning until TF 2 is able to seize the bridge.

<center>Effective Use of Resources</center>

Does the process focus the use of resources towards the achievement of results desired and minimize counterproductive efforts? The objectives-based approach orients action and resources towards the achievement of a static military end state. It does this by

<center>54</center>

synchronizing the execution of tasks that move the situation from the current situation towards the desired end state. While the objectives-based approach focuses resources towards the achievement of results desired, the end state, it fails to account for counterproductive efforts. This task-centric approach does not account for the impact of actions on the situation beyond the impact on the enemy, the terrain, and the friendly forces. Failing to account for the impact of tasks on the entire battlespace can result in actions that are counterproductive towards achieving the conditions or effects required. While the actions may meet the feasibility, suitability, and acceptability test for the military conditions for success, they may, nevertheless, violate or hinder the diplomatic, informational, or economic conditions for success and therefore be unacceptable.

The effects-based approach better focuses resources towards the achievement of results desired than the objectives-based approach. The objectives-based approach focuses resources towards the accomplishment of tasks, but accomplishment of the tasks does not necessarily imply achievement of the results or effects. For example, just because the aircraft executed the task of dropping their bombs on the enemy formation, does not mean that the results desired were achieved. How can the objectives-based approach focus resources towards the achievement of the results or conditions desired if the process fails to account for the conditions, which define success? If the objectives-based approach assigns resources to accomplish a task without considering the cause-effect relationship, then the approach may unnecessarily commit resources to unnecessary action. In the same line of thought, not only it is entirely possible for assigned tasks and resources to be unnecessary, but they may in fact create counterproductive results or effects which move the situation farther away from the

desired future state. Dropping the bombs on the enemy formation might not achieve the desired result of the enemy unable to interfere with the friendly attack, it might actually force the enemy to move in the direction of the friendly attack in order to avoid further losses in its assembly area.

The effects-based approach focuses tactical actions and resources directly towards the achievement of not only tactical effects, but also operational and strategic effects. Additionally, the effects-based approach recognizes that the effects of tactical actions influence more than just the military conditions; they may also affect the diplomatic, informational, and economic conditions, all of which define success. The recognition of cumulative and cascading effects, coupled with the focusing of tactical actions towards the achievement of effects, minimizes the allocation of resources to anything other than those actions that contribute towards creating the conditions that define achievement of the objectives.

Synchronization

Does the process arrange tasks and actions in time, space, and purpose to achieve desired results? The challenge of synchronization is more than simply the sequencing of activities in time; it is the challenge of sequencing the results of action in time, space, and purpose. The primary difference between the two approaches with respect to synchronization is the thought process that precedes action. The principal challenge is the sequencing of actions (tasks) to ensure that conditions are set to accomplish the decisive operation. The objectives-based approach identifies the tasks to be accomplished and the appropriate sequence to execute those tasks.

For example, in order to conduct a breaching operation, a unit must accomplish the following tasks: suppress the enemy overwatching the breach site, obscure the enemy's observation of the breach site, secure the breach site, reduce the obstacles at the breach site, and then assault the enemy position. Before the assault force can penetrate and assault an objective, the breach force must secure and reduce the obstacle, providing lanes to pass the assault force onto the objective. Before the breach force can establish lanes through the obstacle, the support force must suppress enemy forces overwatching the breach site and obscure the breach site from enemy observation. Each task (action) sets conditions for subsequent tasks (actions). This is illustrated in figure 6.
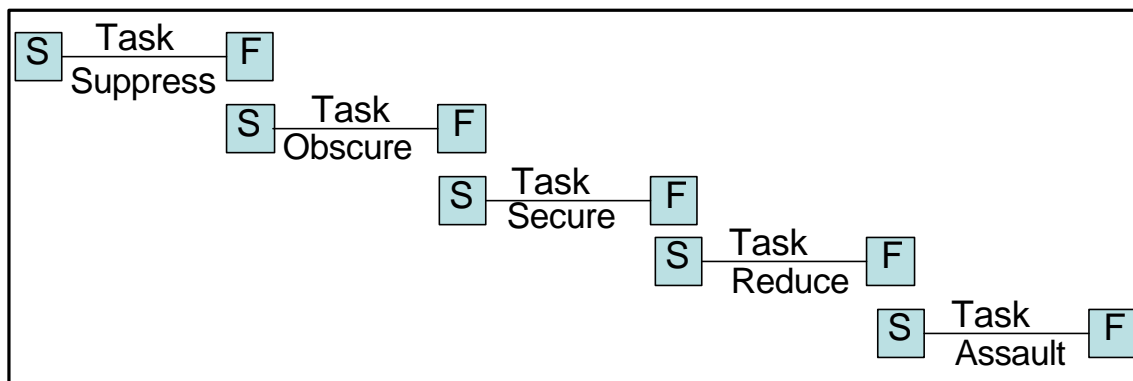

Figure 6. Breach Task Sequence

The objectives-based approach to operations does an adequate job of sequencing tasks, but it does not provide an effective framework for ensuring the results of actions are synchronized, because it focuses on the sequencing of tasks. Initiation of the tasks follows the sequence identified, but merely following the sequence does not guarantee

success. At the tactical level, timing is critical. While execution requires the correct sequence, success or failure is subject to more than just sequence; it is subject to careful timing of each independent action. Actions executed too early or too late threaten success.

To be successful, the objectives-based approach requires units to consider the duration of tasks carefully. How long will it take to get effective suppression of the enemy overwatching the breach site? How long will it take to have effective obscuration? How long will it take to get the breach force to the obstacle and then how long will it take to reduce the obstacle? Once the obstacle is open, how long will it take to move the assault force to and through the lanes in the obstacle? Good units conduct backwards planning from the decisive operation back to the line of departure and carefully consider the duration of tasks. The primary tool used is the synchronization matrix. However, even when the duration of tasks is taken into account, the process is task rather than results oriented. Synchronization is not merely the sequencing of tasks and actions in the order for which they need to be accomplished. Synchronization is the arrangement of results in time, space, and purpose in the order in which they need to be achieved.

Although some may argue that good units make the objectives-based approach work by incorporating the results and duration of task and effects into the sequencing of tasks, it is likely due to practice and experience rather than to institutionalized thought process. By focusing on the results, intended and unintended, the effects-based approach fosters synchronization by taking the sequencing of activities to the next level and synchronizing the results of action rather than simply the sequencing of tasks and action.

58

Focusing on effects or results rather than tasks is likely a better approach to synchronization, but from a practical point of view tactical actions require clear direction. Admittedly, the conduct of a breach operation is one of the most complex, combined arms operations, but it is an example of a tactical operation that requires careful synchronization. The arrangement of direct fires, dismounted infantry, armored vehicles, indirect fires, smoke, signals, and engineers operating in close proximity during hours of limited visibility within observation and direct fire range of enemy forces complicates a task that is difficult even during training.

When the breach task sequence considers the results or effects of actions, the key to synchronization is revealed. Each task has a start time, an end time, and a duration. Actions take time to complete. Attempts to synchronize action based on the start time, end time, and duration are insufficient. It is only when effects, results, or conditions are considered that effective synchronization can be achieved. The task of suppressing the enemy has a start and an end time. The effect, result or condition desired, "enemy over watching the breach site is suppressed," begins almost immediately following initiation of the task and continues through the end time and lingers briefly after the task is ended, as depicted by the gray area under the task in figure 7. By comparison the effects or results of the task "reduce the obstacle" are not present until the task is completed, again as depicted by the gray area in figure 7. This highlights the futility of synchronizing tasks without regard to the effects or results. Focusing on the synchronization of effects achieves the synchronization of tasks, but synchronization of tasks does not necessarily synchronize effects.
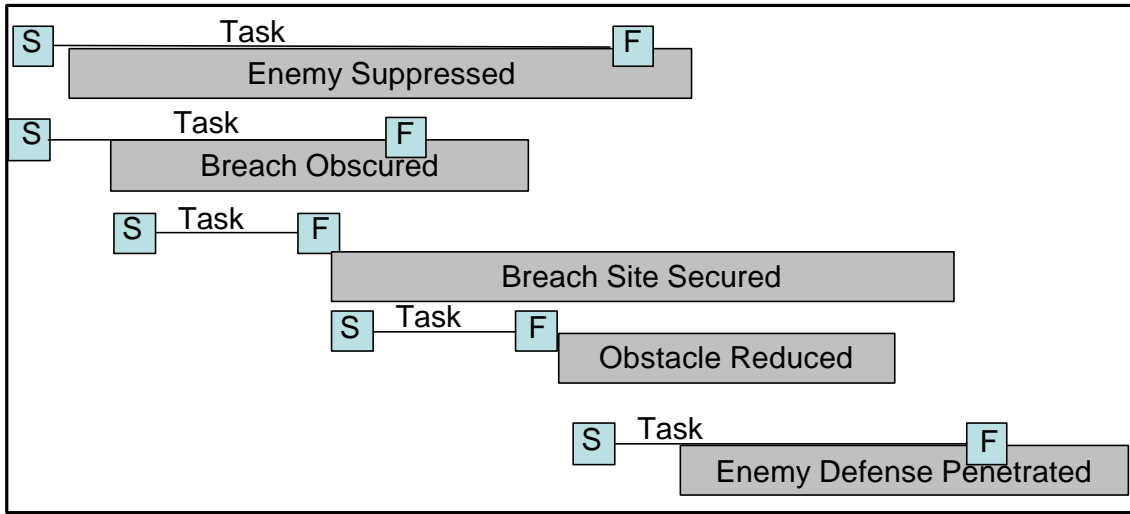
Figure 7. Breach Effects Sequence

It is clear that successful units consider the duration of tasks and the timing of effects when using the current objectives-based approach. Consider the task of obscuration. Successful units consider where the effects of the smoke screen should be placed in relationship to the enemy, the friendly force, and the breach site. They also consider when the effect of the smoke screen is needed and for what duration. In order to execute the task, the firing unit must account for the effects of the weather and terrain on the trajectory of the smoke projectiles and on the resulting smoke as it drifts away from the point of impact. Successful units synchronize the execution by not initiating the next action until the effects or conditions are set to exploit the effects created. The breach force is not exposed to enemy observation, because it is not moved forward until the suppression and obscuration effects create the conditions required. This implies that successful units already incorporate an effects-based approach to operations. Failure to

account for effects, their timing, and duration makes synchronization inherently more difficult.

Flexible and Adaptive Execution

Does the process provide for initiative in subordinates to adapt and alter execution based on the continually changing situation? Both approaches to operations seek to maximize initiative in subordinates with mission type orders. As previously discussed, the difference is the task centric approach of the objectives-based approach versus the condition or effects centric approach of the effects-based approach.

The objectives-based approach does not preclude flexible and adaptive execution, but neither does it foster and encourage it. Flexibility is built into the plan by assigning "be prepared" and "on order" tasks, flexible control measures, robust command and control systems, and the provision of a mobile reserve. Additionally, flexibility is achieved through the development of branches and sequels to deal with both expected and unexpected changes in the tactical situation. Flexibility is subject to subordinates' willingness and ability to alter the method for executing tasks assigned, while accomplishing the task and purpose assigned by higher headquarters. For the objectives-based approach to operations, this is encouraged, so long as the subordinate operates within the commander's intent. The problem with this approach, as mentioned before, is that it is overly task centric.

The effects-based approach to operations provides greater flexibility and adaptability by directing the effects, conditions, or results required and leaving greater latitude for subordinates to execute and modify the task, the purpose, and the method, so long as they achieve the effect directed by higher headquarters. If the selected method

does not appear to be effective, an alternate method is tried. Alternately, the subordinate has the flexibility to alter the task and the method, while still accomplishing the purpose. Finally, the least desirable but potential solution is to alter the task, purpose, and method, while still achieving the effect required. This approach provides a wealth of options to the subordinate and fosters initiative because, regardless of task, purpose, and method chosen, so long as the subordinate is focused on creating the effects directed by the commander, the subordinate is operating within the commander's intent.

Full Spectrum of Conflict

Does the process work across the spectrum of conflict, from peace through conflict and into war? As discussed, effective units already use the effects-based approach, unintentionally perhaps, but used nonetheless. Successful use of tactical mission tasks, such as block, fix, clear, canalize, and disrupt, not only incorporates the action to be accomplished but more importantly incorporates when, where, for what duration, and on what element of the battlespace the effect is required. For example, assigning the tactical mission task of block is insufficient. The task requires greater description of the effect to be successful. For example, block an enemy mechanized battalion in Bravo Pass for two hours. Likewise, in the example of a breaching operation, success requires greater definition of the tasks, as the sequence alone is insufficient. Successful planning and execution require greater consideration of the effects to be created, when, where, and for what duration, in order to properly synchronize not just the tasks and the action, but also the results or the effects.

What about stability operations and support operations and operations at the lower end of the spectrum of conflict? One of the challenges for military forces conducting

these operations is the fact that these missions require the military to accomplish objectives in the diplomatic, economic, and informational realms more so perhaps than in the military realm. Using the objectives-based approach challenges tactical units in these operations due to the ambiguity of the tasks to be accomplished. Rarely are tasks for stability operations and support operations prioritized in unit METLs. It is difficult to both design military objectives and assign tactical tasks to subordinates that will accomplish the objectives. Standard tactical mission tasks address some of the potential tasks likely to be assigned, but there remains a wealth of potential objectives for which there are no suitable tasks listed in FM 3-90, *Tactics*. A similar look at FM 3-07, *Stability Operations and Support Operations*, provides a wealth of information, but it is remarkably void of any tactical mission tasks or similar tasks appropriate to stability operations and support operations.

Since in these operations success is shaped and influenced more by diplomatic, informational, and economic factors than military factors, military forces must identify and develop operational plans to create conditions of success in support of not just the military line of operation but also the diplomatic, informational, and economic lines of operations. Current tactical mission tasks, as listed in FM 3-90 and as selected based on the objectives-based approach, have little utility because they are oriented towards the achievement of military tactical objectives. These tasks focus on defeating military forces and controlling terrain. As mentioned, FM 3-07 fails to provide guidance on military tasks equivalent to tactical mission tasks as listed in FM 3-90. Units executing stability operations and support operations must therefore undergo a dramatic shift in mental processes to adapt the objective-based approach to operation.

The effects-based approach offers the potential to overcome this challenge in that there is not the dramatic mental shift necessary. The effects-centric thinking embedded in EBO seamlessly transitions from major combat operations through small-scale contingencies and into peacetime military engagement. In each situation across the spectrum of conflict, success is defined by the diplomatic, informational, military, and economic conditions (effects) which make up the desired future state. Admittedly, the military is not the principal agent responsible for creating all the conditions or effects that define successful resolution. However, focusing on the military line of operation to the exclusion of the other required conditions is problematic.

What is significant is that the process for analyzing and planning operations remains the same. Regardless of the specific point on the spectrum, successful planning begins by identifying the effects or conditions required to create the desired future state. This analysis considers the desired conditions across all the lines of operation, diplomatic, informational, military, and economic. From these desired effects or conditions, tasks are identified which are likely to cause or create the desired results. On the war-fighting end of the spectrum, those tasks may largely consist of standard tactical mission tasks. On the other end of the spectrum, tasks are necessary, and their identification and selection is based on the same approach to operations as used during war-fighting. If a task is likely to create the desired effects and unlikely to create counterproductive or undesired effects, and if it is within the capabilities of the unit, then it is worth considering for execution, even if the task is not listed in Appendix B of FM 3-90 or in FM 3-07.

There is a greater issue for debate, which must be resolved before an appropriate approach to tactical operations can be further analyzed. The issue to be clarified is related to the conquest paradigm as identified in the CADRE paper, which views military action not as the extension of diplomacy but rather the end or the failure of diplomacy. As illustrated in figure 8, the paradigm assumes clear and abrupt transitions from peace to war and back to peace (Mann, Endersby, and Searle 2002, 14).
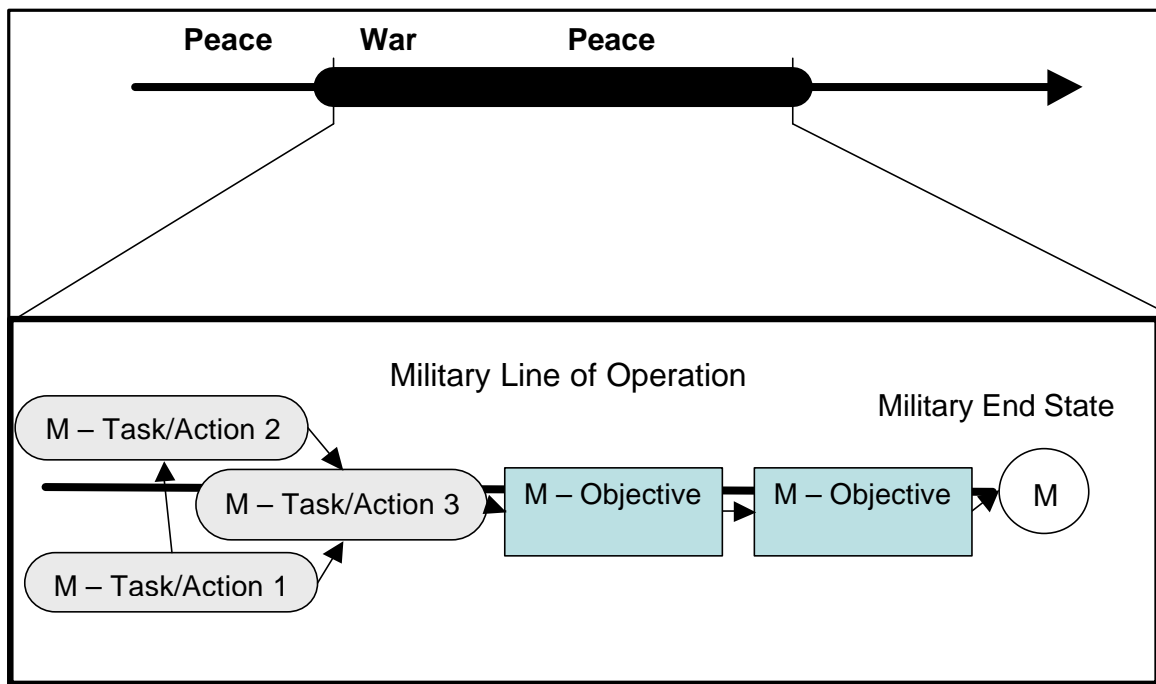
Figure 8. Conquest Paradigm

Such military actions are fought by any and all means until victory is achieved. The conquest paradigm is actively hostile to unnecessary political restraints on the use of military force and to politically motivated actions.

This perspective denies the pronouncement of Clausewitz in his treatise, *On War*, and implies that war is the failure of diplomacy rather than, "a continuation of policy by other means" (Anatol Rapoport 1968, 119). Clausewitz would likely argue that his pronouncement is even more relevant to conflict and the application of military force at the lower end of the spectrum of conflict. If the introduction or application of military power in circumstances less than war is not for diplomatic reasons or reasons of national policy, then what justification is there for consideration?

Therefore, especially short of war, military operations will seldom operate divorced from diplomatic conditions for success. Further, it is unlikely that a nation would commit the military instrument of national power without also committing the other instruments towards the achievement of the desired future state. As previously mentioned, military actions have multiple effects, which affect more than just the military conditions for success. These effects may promote or they may impede progress towards the desired outcome in any or potentially all the domains. As depicted in figure 9, the military line of operation accounts for the impact of military operations on the diplomatic, informational, and economic results, in addition to the military conditions, results, or effects. Moreover, while the thought and the diagram suggest strategic thought, it explains why tactical actions can have strategic implications.

```
                    Elements of National Power
                     Lines of Operation

                                              ┌─────────────┐
                                              │ D – Effect 1 │
                                              ├─────────────┤
                                              │ D – Effect 2 │         ⬭
                                              ├─────────────┤        D
                                              │ D – Effect 3 │
                                              └─────────────┘

                       CAUSAL LINKAGES
                                              ┌─────────────┐
                                              │ I – Effect 1 │
                                              ├─────────────┤        ⬭
                                              │ I – Effect 2 │       I
                                              ├─────────────┤
                                              │ I – Effect 3 │
   ┌──────────────────┐                       └─────────────┘
   │ M – Task/Action 1 │
   ├──────────────────┤                       ┌─────────────┐       ⬭
   │ M – Task/Action 2 │                       │ M – Effect 1 │      M
   ├──────────────────┤                       └─────────────┘
   │ M – Task/Action 3 │
   └──────────────────┘
                       CAUSAL LINKAGES
                                              ┌─────────────┐       ⬭
                                              │ E – Effect 1 │      E
                                              └─────────────┘
```
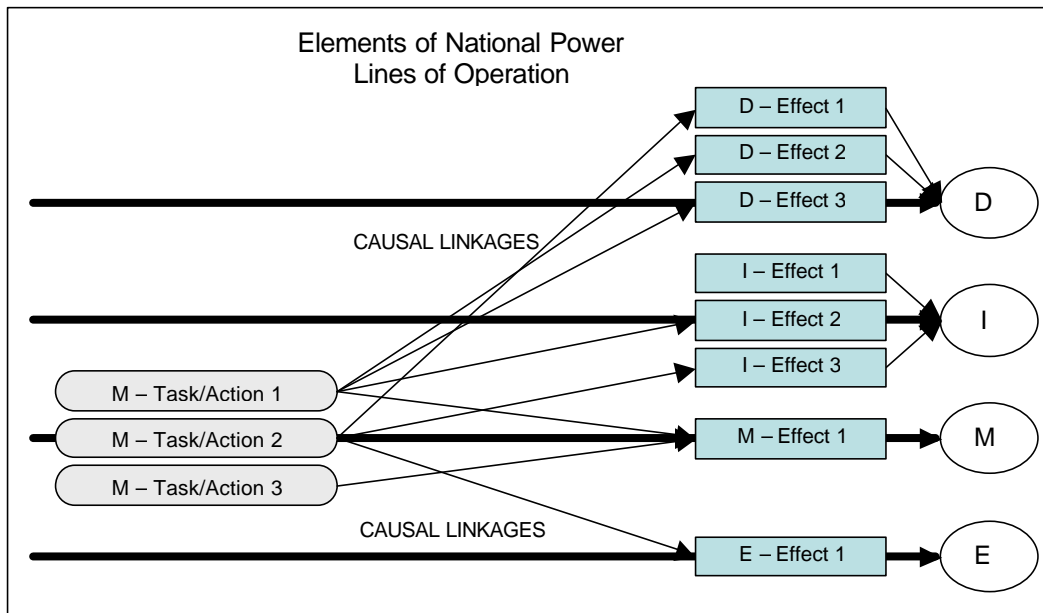
Figure 9. Diplomatic, Informational, Military, and Economic Lines of Operation

Assesses the Results of Actions on the Entire Battlespace

The final criterion for consideration is whether the process anticipates, accounts

for, and assesses the potential and eventual results of actions against the desired results

on all the elements of the battlespace. This encompasses not just the enemy force, the

friendly force, and the terrain, but also the infrastructure, the media, and the other actors

and spectators who see and occupy the battle space.

The two approaches to operations both incorporate assessment, without which it

would be impossible to determine success or failure. What is notably different between

the two approaches is the temporal component. The objectives-based approach

incorporates assessment during COA analysis. The action, reaction, counteraction drill

does a fair job of predicting and accounting for the effects of friendly action on the

enemy, the friendly force, and, to a lesser extent, the terrain, but as currently performed it seldom considers or accounts for the impact on the remainder of the elements in the battlespace. Additionally, the current approach incorporates assessment into the targeting process, specifically assessing the results of attacks to determine the level of success achieved against directed high-payoff targets. In fact, all operations require assessment. The shortcoming is that much of the assessment is oriented on measuring the level of accomplishment of tasks and doing so after the fact.

As for the temporal component, the objectives-based approach tends to be reactive assessment. If the friendly force takes this action, then the enemy force will likely have this reaction and so the friendly force will counteract as such. While this thought process is not without merit, there are problems inherent in the approach. First, while the process appears to consider second- and third-order effects, in reality it only considers a single reactionary chain. Second, the process remains task centric. Third, although the enemy reaction is a potential result or effect caused by the friendly action, the process ignores the impact or effects beyond the first-order impact on the enemy force and the second-order effect on the friendly force. It discounts the impact on the enemy force higher headquarters, the adjacent units, the local population, the infrastructure, the media, or any of the other elements of the battlespace.

The effects-based approach begins with the effects. Tasks are selected and executed based on their causal linkage to creating the specific effect on the appropriate element of the battlespace. The effects-oriented process requires proactive thought on results and assessment before selecting an appropriate task and, therefore, before taking the action rather than reactively after the fact. The difference is dramatic. What appears

as a subtle shift in how to think about operations results in more acutely focused planning and action towards the achievement of the desired outcome.

While the proactive nature of the approach is noteworthy, success is far from guaranteed. Failure to consider assessment and adaptation during execution results in the potential pitfall of remaining rules-, assumption- or faith-based. As identified in the literature review, units must continuously assess evidence against the preconceived rules and assumptions. Specifically, units must assess the assumption that the causal linkage between the task and the effect is a strong linkage. Additionally, regardless of the strength of linkage, units must assess how successful the selected action is at achieving the desired effect. One of the benefits of assessment is that results, whether successful, marginally successful, or unsuccessful, feed the understanding of future task and effect linkages, and this process fosters units that seek to recognize, understand, learn, and adapt.

Comparison of the Two Approaches to Operations

Objectives-Based Approach

Strengths

One strength of the objectives-based approach is that it clearly links tactical actions to military objectives. Second, it fosters mission command by directing the action of subordinates through assigning task and purpose and allowing subordinates flexibility to determine and execute the method as they see fit, so long as they accomplish the assigned task and purpose. Third, the approach clearly identifies and communicates specific actions required by subordinates.

<u>Weaknesses</u>

The first problem with this approach is that it is excessively task centric. This approach fails to account for the fact that the most important component is not the task or even the purpose but the result or the effect. Even if a unit achieves the task and purpose assigned by its higher headquarters, the method used can compromise the result or effect desired. This is especially apparent during MOOTW.

The second weakness of this approach is that it is uniquely focused on the military line of operations. It offers little relevance to the other instruments of national power and the related diplomatic, economic, or informational lines of operation. The approach provides little utility for tactical level commanders and staffs faced with operations not dominated by the military line of operations. It fails to account for the impact of military action on the diplomatic, informational, and economic aspects of the operation. Therefore, military actions which move the situation closer to the military objective are deemed acceptable even when the results of such action hinder the overall desired future state.

While the approach clearly fosters initiative in subordinates and links tactical actions to objectives, both of which are important to a successful approach, it fails to account for the task centric methodology which it breeds. The US Army and, in fact, the US military are task centric: task, conditions, and standards (TCS), mission essential task list (METL), Army universal task list (AUTL) and even universal joint task list (UJTL). Units and leaders become mesmerized by the task to be accomplished at the expense of the purpose or the results.

Effects-Based Approach

First, effects are more enduring than tasks. The effects-based approach directs action based on the conditions, results or effects desired. These effects survive first contact with the enemy. When tactical units are faced with changes in the situation, specific tasks and methods lose relevancy, but purpose and effects endure.

Second, because the approach is results oriented, it is inherently more focused on effective and efficient action likely to cause or create the results on the specific element of the battlespace desired. At the same time, it discourages tasks and action which might be counterproductive in creating the desired effects.

Third, so long as subordinates understand the effect desired they have greater latitude to determine an appropriate combination of task, purpose, and method. This is true during planning and during execution. This latitude fosters greater flexibility, while at the same time providing clearer guidance to subordinates as to the results desired. As such, the approach fosters initiative in subordinates and provides a more useful measure when subordinates are presented with situations and opportunities that vary significantly from that which they or the commander expected.

Fourth, this latitude and flexibility foster adaptive organizations and leaders. The continuous assessment and analysis of the linkage between tasks and effects prevents units from remaining rules- or assumption-based. When the unit recognizes that combinations of a specific task and method do not cause or create the effect required, the unit adapts, alters, and seeks tasks and methods with stronger causal linkages.

Fifth, the effects-based approach recognizes that actions have multiple effects. The approach recognizes that actions can have positive effects, which move the state of conflict closer to the desired result, and negative effects, which can move the state of conflict away from the desired outcome. The approach considers the cumulative and cascading nature of second-, third- and nth-order effects. The approach accounts for more than just the first-order effects on the enemy and the terrain and the second-order effects on the friendly force.

Sixth, the effects-based approach has greater utility across the spectrum of operations. The analytical thought process remains the same regardless of the type of operation or the spectrum of conflict. Units and leaders who understand the cause and effect linkage of tasks to results and focus planning on creating conditions can quickly transition and develop plans without making such large mental shifts.

Seventh, the process facilitates directing actions towards unified action from the tactical level through the strategic level. By breaking the conquest paradigm, military forces better understand how to apply resources and action to achieve unity of effort with regard to not only the military conditions, but also the diplomatic, informational, and economic conditions which define success. The complementary and reinforcing impact of all the instruments of national power acting in a unified manner will likely create an undeniable synergy.

<u>Weaknesses</u>

First, while the use of effects-based guidance provides subordinates with a clear visualization of the conditions or effects that the commander seeks to create in the environment, it is not as directive and clear as the current approach to operations. The

effects-based approach must be tempered with the standard requirements of a mission statement. The five "W"s are still required. Who does what, when, where and why? Without this information, subordinates are unlikely to create the results required by the commander. There is a greater need for commanders to communicate how the actions of subordinates contribute towards creating the effects.

Second, there is a greater onus on subordinates to understand not just the task as assigned in their mission statement, but more importantly, the results that the assigned task is designed to create. Ultimately, the subordinate must accept the burden of achieving the conditions directed and the responsibility for altering the method of execution as necessary. Without this understanding, subordinates will remain focused on completing the task without regard to the effects, results or conditions. Table 2 sums up the above discussion in the form of a decision matrix.

Table 2. Decision Matrix		
Evaluation Criteria	Objectives-Based Operations	Effects-Based Operations
Clear Visualization	Overly task centric, provides little guidance when task assigned no longer applies.	Provides better visualization and guidance, subordinates are guided by the effect, condition or results rather then the task.
Efficient Use of Resources	Nesting of task and purpose delineates tasks and ensures unity of effort, but task-centric nature leaves room for tasks, which may not contribute towards creating the effects desired. Process is largely linear and sequential fostering indirect attack of decisive points rather than direct attack of centers of gravity.	Process minimizes counterproductive tasks and actions, by focusing on the effects and selecting only those tasks, which have strong causal linkages towards creating the effects.
Effective Use of Resources	Task centric approach groups resources to accomplish assigned tasks, but leaves room for failure to achieve results, conditions or effects required.	Focus on effects provides more effective application of resources by clearly identifying actions, which are more likely to move the state of conflict towards the desired state.
Synchronization	Synchronization accounts for the sequence of tasks in time, space and purpose but fails to account for effects. Some units overcome the problem by considering the timing, location and duration of tasks.	Process facilitates better synchronization through consideration of the location, timing and duration of effects rather than tasks.
Flexible and Adaptive Execution	Given task and purpose, subordinates can select and modify the method executed. Task centric commander's intent provides little guidance when tasks no longer apply.	Provides greater flexibility and adaptability, by allowing subordinates to modify the task, purpose and method, so long as they achieve the effects required.
Assesses the Results of Actions on Entire Battlespace	Reactive process, considers single linear chain from action to enemy reaction, followed by friendly counter action but does not consider impact on other elements of the battlespace.	Proactive process, only considers tasks and action likely to create the desired effect. Effect focuses on when, where and on what element of the battlespace effect is desired.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The intent of this research was to examine the emerging operational concept known as effects-based operations, with the goal of answering the primary question: Does the concept of EBO have utility at the US Army tactical level, specifically with respect to the Army vision for the future force operating in the COE? In order to determine utility, it was necessary to compare the current approach to operations, the objectives-based approach, with the effects-based approach.

The comparison was facilitated through the identification of evaluation criteria drawn from three conditions imposed on the problem: the COE; the future force, and the tactical level of war. The secondary questions provided the basis for analysis.

1. What is unique to the tactical level of war?

2. How will the COE impact operations at the tactical level of war?

3. What will be important facets of the future force?

The secondary questions provided the following evaluation criteria: Clear Visualization, Efficient Use of Resources, Effective Use of Resources, Synchronization, Flexible and Adaptive Execution, and Assesses the Results of Actions on Entire Battlespace.

Based on the evaluation criteria identified, the concept of effects-based operations clearly does have utility at the tactical level for the US Army operating in the COE. While the concept of effects-based operations found its genesis at the strategic and operational levels, it has utility at the tactical level. The effects-based approach offers the opportunity for commanders to give more effective guidance, which provides greater

latitude for subordinates during execution. At the same time, such guidance is more enduring when the tactical situation changes. The tactical level of war requires clear direction and understanding during planning, but it also requires flexible and adaptive execution. The COE challenges any approach to operations, but analysis showed that there is substantial benefit to the effects-centric approach. The added uncertainty and expanded battlespace of the COE, along with the increased opportunity for tactical actions to have operational and strategic consequences, require careful consideration of appropriate and inappropriate tasks and actions. The future force, designed to overcome the strategic environment faced by the USA, seeks to see first, understand first, act first, and finish decisively. To do this the future force cannot afford to blunder into the strategic environment. The effects-based approach does a better job of fostering understanding and selecting actions focused on creating the conditions essential to success. It also fosters learning organizations, which continually assess the task-effect linkage in order to leverage experience and preclude faith- or belief-based operations.

One of the most interesting discoveries identified in the course of this research is the fact that the US Army already uses many of the essential components of the effects-based approach to operations at the tactical level. The use of effects appears to be emergent based on experienced creative leaders incorporating best practices rather than deliberately planned or institutional based on doctrine. As a minimum, the delineation between task, purpose, method, effect, and objective provides a plausible operational model from which to explain clarity and synchronization or the confusion that can arise from the lack thereof.

During the course of the research, every effort was made to keep the discussion relevant to units operating at the tactical level of war. If the concept demonstrated relevance at the strategic or operational level of war, then it merely reinforced the likelihood that EBO will eventually be embraced and incorporated into joint doctrine. The goal, however, was to ensure relevance at the tactical level for the battalions, brigades, divisions, or units of action, which might be expected to use the effects-based approach.

What is surprising is that, in the process of using the tactical level of war essentially as a screening criterion an interesting thought emerged. If tactical actions are those which are executed to create the desired conditions or effects, and if the resulting effect of tactical action can have tactical, operational, and strategic effects, then there is an opportunity to design and execute operations directly aimed at the achievement of the strategic conditions or effects that define the strategic desired end state. This direct approach is analogous to the direct attack of decisive points that directly influence the enemy center of gravity, rather than the attack of decisive points on an indirect line of operations, sequentially leading to attack of decisive points influencing the enemy center of gravity. As identified in the primary sources, it is unlikely that a single tactical action will achieve a desired strategic objective, but the potential remains that multiple tactical actions with strong causal linkages to the strategic effects may result in shorter operational timelines.

An added benefit of this approach is that not only would the operational timeline be shorter, but also the focus of tasks directly affecting the strategic conditions for success would minimize extraneous tasks. The military mind when confronted with an

77

unfamiliar situation is inclined to "do something." But prudence is required; merely doing something in order to take action it not necessarily a good thing. Actions can and will affect the situation. The focusing of effort on those necessary actions that contribute towards achieving the desired future state minimizes the chance for actions that are counterproductive to the desired results.

As a cautionary note, the research and analysis did not consider the mechanics of incorporating the effects-based approach to operations. Clearly, there are some significant challenges that may hinder the application of such an approach. Further development and analysis is required to move the conceptual thought towards a useable process.

Throughout the course of research, there was a nagging suspicion that the tactical level is unique. While effects are clearly a critical component of describing, directing, and synchronizing action at the tactical level, there is some comfort in directing a specific tactical task with a clearly defined idea of what action is expected. That comfort is mutual between the leader and the subordinate. Moving from a task-centric approach to an effects-centric one has merit, but it is not without cost. Some will argue that the approach assumes a quasi-scientific answer to an artistic problem. Some will argue that the approach is too analytical, or that tactical units have insufficient time to ponder the tactical universe for the perfect COA. Those who would make such arguments should consider the targeting process, target value analysis, and course of action analysis and war-gaming, all of which already incorporate elements of the effects-based approach. Likewise, successful tactical units already spend significant time seeking to understand the operational environment. While the process does involve analytic thought and understanding of the enemy and, in fact, the battlespace as a system of systems, this

analysis is presently embedded in the current US operational process and doctrine. It is folly to ignore the scientific element, for without science there is no art.

Recommendations

A great deal of work remains before such an approach to operations can be used effectively at the tactical level. Clearly, due to the limited time and information available, this research merely scratched the surface of a complex issue. The thoughts and ideas addressed in the course of the research are subject to the author's and the reader's interpretation. The topic is a difficult one to address academically, because there is a lack of real world evidence from which to make subjective assessments. First, the joint community needs to experiment and turn the ideas into an operational process. With the collaboration of the services and perhaps even the affected US governmental agencies, there needs to be an agreement on terms and definitions.

It is imperative that the US Army actively enter the intellectual dialogue over effects-based operations. It appears that the US Army is much farther along than it realizes, and with some thoughtful review it may realize that it has, unintentionally perhaps, embraced effects-centric thinking as a pragmatic solution to effective execution based on recent operational experience. It is imperative that the EBO concept be carefully scrutinized by the joint military community and by the other agencies that wield the other instruments of national power.

Even if the concept of EBO is not embraced and incorporated into joint doctrine, there must be a coherent review of US Army tactical doctrine. The current trend of the fires community as the effects-coordinating agent in tactical units required careful thought and consideration. Until the Army defines what effects are and are not, and until

the army clarifies the relationship between task, effects, and objectives, there will continue to be confusion and difficultly in the massing and synchronization of combat power. Specifically, are effects the results of the application of lethal and nonlethal fires? Are effects the results of the application of all the elements of combat power? Are effects the results of military and nonmilitary action alike? Following resolution of this keystone definition, it is likely that, as a minimum, BST 3-09-41, Fires and Effects for Stryker Brigade Combat Team (SBCT) Operations, will need a re-write.

As a minimum, the US Army should embrace the full definition of commander's intent and encourage a more liberal use of conditions rather than just key tasks to describe the commander's visualization and direct the actions of subordinates. In FM 6-0, *Command and Control*, commander's intent is described as a "clear, concise statement of what the force must do and the conditions the force must meet to succeed with respect to the enemy, terrain and to the desired end state" (emphasis added, 2001, 1-16).

In the joint arena, the US Air Force needs to tread lightly. If the strategic bomber community focuses solely on the narrow definition of EBO, then the likely result will be a continued resistance to the many of the worthy concepts inherent in the broader view of EBO. This would be a tragedy, for even with the evident shortcomings of the approach, there is considerable value in the dialogue and the intellectual exploration and analysis.

GLOSSARY

Cascading Nature of Effects. Indirect effects can ripple through an enemy target system, often influencing other target systems as well. Most often this cascading of indirect effects flows from higher to lower levels of war. As an example, when destroying an enemy central headquarters, the effects cascade down through the enemy echelons to ultimately disrupt numerous tactical units on the battlefield. (JFCOM Glossary)

Centers of Gravity. Those characteristics, capabilities, or localities from which a military force derives its freedom of action, physical strength, or will to fight. (JFCOM Glossary)

Close Combat. Combat carried out with direct fire weapons, supported by indirect fires, air-delivered fires, and nonlethal engagement means. Close combat defeats or destroys enemy forces or seizes and retains ground. (FM 3-0)

Collateral Nature of Effects. Collateral effects are unintentional or incidental direct or indirect effects causing injury or damage to persons or objects. (JFCOM Glossary)

Contemporary Operational Environment COE). The operational environment that exists today and for the clearly foreseeable future. An operating environment comprised of a combination of eleven critical variables: the physical environment, the nature and stability of the state, sociological demographics, regional and global relationships, military capabilities, technology, information, external organizations, national will, time, and economics. (FM 7-100)

Combat Power. The total means of destructive and/or disruptive force which a military unit/formation can apply against the opponent at a given time. (JP 1-02)

Commander's Intent. A clear, concise statement of what the force must do and the conditions the force must meet to succeed with respect to the enemy, terrain, and to the desired end state. (FM 6-0)

Course of Action (COA). Any sequence of activities that an individual or unit may follow, a possible plan open to an individual or commander that would accomplish, or is related to the accomplishment of the mission. (JFCOM Glossary)

Cumulative Nature of Effects. Cumulative effects result from the aggregate of many direct or indirect effects. This may occur at the same or at different levels of war as the contributing lower-order effects are achieved. However, cumulative effects typically occur at higher levels of war. (JFCOM Glossary)

Diplomatic, Information, Military and Economic (DIME). Areas of national power that are leveraged in "effects-based" operations against an adversary's vulnerabilities identified by Operational Net Assessment, and targeted against his will and capability to conduct war. (JFCOM Glossary)

Direct Effects. Direct effects are immediate, first order effects, the results of military actions with no intervening effect or mechanism between act and outcome, and are usually easily recognizable. (JFCOM Glossary)

Effect. The physical, functional, or psychological outcome, event, or consequence that results from specific military or non-military actions. (JFCOM Glossary)

Effects Based Operations. A process for obtaining a desired strategic outcome or "effect" on the enemy, through the synergistic, multiplicative, and cumulative application of the full range of military and nonmilitary capabilities at the tactical, operational and strategic levels. (JFCOM Glossary)

Indirect Effects. Indirect effects are second- and third-order systematic effects that are the results created through an intermediate effects or mechanism to produce the final outcome, which may be physical or psychological in nature. Indirect effects tent to be delayed and may be difficult to recognize and are often a cumulative or cascading result of many combined direct effects. (JFCOM Glossary)

Mission. The task, together with the purpose, that clearly indicates the action to be taken and the reason therefore. (JFCOM Glossary)

Mission Command. Mission Command is conducting military operations through decentralized execution based on mission orders for effective mission accomplishment. (FM 6-0)

Objective. 1. The physical object of the actions taken, e.g., a definite tactical feature, the seizure of holding of which is essential to the commander's plan. For purposes of Rapid Decisive Operations and the description of effects-based philosophy, the term objective is under in the broader sense of end state rather than physical objective. (JFCOM Glossary) 2. A location on the ground used to orient operations, phase operations, facilitate changes of direction, and provide for unity of effort. (FM 3-90)

Operational Environment. A composite of the conditions, circumstances, and influences that affect the employment of military forces and bear on the decisions of the unit commander. (JP 1-02)

Operational Level of War. The level of war at which campaigns and major operations are planned, conducted, and sustained to accomplish strategic objectives within theaters or areas of operations. Activities at this level link tactics and strategy by establishing operational objectives needed to accomplish the strategic objectives, sequencing events to achieve the operational objectives, initiating actions, and

applying resources to bring about and sustain these events. These activities imply a broader dimension of time and space than do tactics; they ensure the logistics and administrative support of tactical forces, and provide the means by which tactical successes are exploited to achieve strategic objectives. (JFCOM Glossary)

Operational Level Effects. Operational effects influence activities at the operational level of war and focus on campaigns and operational objectives. (JFCOM Glossary)

Rules of Engagement (ROE). Directives issued by component military authority which delineate the circumstances and limitations under which United States forces will initiate and/or continue combat engagements with other forces encountered. (JP 1-02)

Strategic Level Effects. Strategic effects influence activities at the strategic level of war and focus on national and multinational military objectives. Rarely will attacking a single target directly result in the desired strategic effect. The limited exceptions to this rule involve such exceptional circumstances as a successful action against a uniquely irreplaceable center of gravity. (JFCOM Glossary)

System of Systems. A grouping of organized assemblies of resources, methods, and procedures regulated by interaction or interdependence to accomplish a set of specific functions. (JFCOM Glossary)

Tactical Level of War. The level of war at which battles and engagements are planned and executed to accomplish military objectives assigned to tactical units or task forces. Activities at this level focus on the ordered arraignment and maneuver of combat elements in relation to each other and the enemy to achieve combat objectives. (JP 1-02)

Tactics. The employment of units in combat. It includes the ordered arrangement and maneuver of units in relation to each other, the terrain, and the enemy to translate potential combat power into victorious battles and engagements. (FM 3-0)

Targeting. The process to detect, select, and prioritize targets; match the appropriate action; and assess the resulting effects based on the commander's objective, guidance, and intent. Targeting is both a joint- and component-level command function that selects targets, which meet military objectives; determines desired effects, and selects or tasks the means to achieve those effects. (JFCOM Glossary)

Rapid Decisive Operations (RDO). Rapid decisive operations is a concept for future operations. A rapid decisive operation will integrate knowledge, C2, and operations to achieve the desired political/military effects. In preparing for and conducting a rapid decisive operation, the military acts in concert with and leverages the other instruments of national power to understand and reduce the regional adversary's critical capabilities and coherence. (JFCOM Glossary)

Unified Action. A broad generic term that describes the wide scope of actions (including the synchronization of activities with governmental and nongovernmental agencies) taking place within unified commands, subordinate unified commands, or joint task forces under the overall direction of the commanders of those commands. (JP 0-2)

Unity of Effort. Coordination and cooperation among all forces toward a commonly recognized objective, even if the forces are not necessarily part of the same command structure. (FM 3-90)

REFERENCE LIST

Batschelet, Allen W. 2002. Effects-based operations: A new operational model?. Carlisle Barracks, Pennsylvania: Army War College.

_____. 2003. Effects-based operations for joint warfighters. *Field Artillery* (May-June): 7-13.

Bingham, Price T. 2002. Seeking synergy: Joint effects-based operations. *Joint Force Quarterly* (spring): 52-59.

Chairman of the Joint Chiefs of Staff. 1999. *Universal joint task list (change 1, 1 November 1999)*. Washington DC: Chairman of the Joint Chiefs of Staff, 1 October. Chairman of the Joint Chiefs of Staff Manual 3500.04B.

Cheek, Gary H. 2002. *Effects-based operations--the end of dominant maneuver*. Strategy Research Project. 15 May. ADA401019. Available from http://stinet.dtic.mil/cgi-bin/fulcrum_main.pl. Internet. Accessed 30 October 2003.

Cook, Nick. 2003. Cause and effect (briefing: effects-based air operations). *Jane's Defense Weekly*, vol. 39, no. 24 (18 June): 52-57.

Cook, Nick. 2003. The death of strategy: effects-based air operations. *Jane's Defense Weekly*, vol. 39, no. 24 (18 June): 52-57.

Crowder, Gary L. 2003. Transcript of DoD B*riefing on effects-based operations.* Arlington, Virginia: FDCH Political Transcripts.

Deptula, David A. 2001. E*ffects-based operations: Change in the nature of warfare*. Arlington, Virginia: Aerospace Education Foundation, Air Force Association. Internet. Available from http://www.aef.org/pub/psbook.pdf; accessed 29 October 2003.

Dubik, James M. 2003. Effects-based decisions and actions. *Military Review* (January-February): 33-36.

_____. 1993. On initiative and control. *Marine Corps Gazette* (April): 74-81.

Greer, James K. 2002. Operational art for the objective force. *Military Review* (September-October): 22-29.

Linde, Gwen, Dennis J. Gleeson, Kathlene McGrath, Adrienne J. Murphy, Williamson Murray, Tom O'Leary, Joel B. Resnick. 2001. *New perspectives on effects-based operations: Annotated briefing*. Alexandria, Virginia: Institute for Defense Analysis.

Mann, Edward C., Gary Endersby, Thomas R. Searle. 2001. *Dominant effects: Effects-based joint operations*. Maxwell Air Force Base, Alabama: Air University Press.

_____.2002. *Thinking effects: Effects-based methodology for joint operations*. Maxwell Air Force Base, Alabama: Air University Press.

Rapoport, Anatol, ed. 1968. *Carl Von Clasewitz on war*, New York, New York: Viking Penguin Inc.

Sliwa, Steven A., and Robert O. Kirkland. 2003. ECCORD vice FSCOORD: More than a name change, *Field Artillery* (March-April): 35-37.

Smith Jr., Edward A. Network-centric warfare: What's the point?, *Naval War College Review* (Winter 2001, vol. LIV, no. 1): 59-75.

US Department of the Air Force. Air Combat Command (ACC). 2002. *ACC white paper: effects-based operations*. Langley, Air Force Base, Virginia: Air Combat Command.

_____. Headquarters Air Force Doctrine Center. 2000. Air Force Doctrine Document 2, *Organization and employment of aerospace power*. Maxwell, Air Force Base, Alabama: Headquarters Air Force Doctrine Center.

US Department of the Army. Training and Doctrine Command. 2003. *The Army future force: Decisive 21st century landpower.* Fort Monroe, Virginia: Training and Doctrine Command. August 26.

_____. 2003. Brigade Special Text No. 3-09.41, *Tactics, techniques and procedures for fires and effects for stryker brigade combat team (SBCT) operations* (Final Draft), DC: US Department of the Army, January.

_____. 2001. Field Manual No. 1, *The Army*, Washington, DC: US Department of the Army, 14 June.

_____. 2001. Field Manual No. 3-0, *Operations,* Washington, DC: US Department of the Army, 14 June.

_____. 2002. Field Manual No. 3-07, *Stability operations and support operations (DRAG),* Washington, DC: US Department of the Army, 1 February.

_____. 2001. Field Manual No. 3-90, *Tactics*, Washington, DC: US Department of the Army, 14 July.

_____. 2001. Field Manual No. 6-0, Command and Control (DRAG), Washington, DC: US Department of the Army, March.

_____. 2003. Field Manual No. 7-100, *Opposing Force Doctrine, Framework and Strategy,* Washington, DC: US Department of the Army, 1 May.

US Department of Defense. 2001. Joint Publication 1-02, *Department of Defense dictionary of military and associated terms.* Washington, DC: US Department of Defense (as amended through 5 September 2003).

US Joint Forces Command, J9. 2001. *EBO White Paper Version* 1.0.

_____. 2003. Glossary. Internet. Available from http://www.jfcom.mil/about/glossary.htm; accessed 30 October 2003.

Wainwright, David. 2003. *Should the Australian Army adopt effects based operations?* Thesis, Army Command and General Staff College, Fort Leavenworth, Kansas.

Webster New Dictionary of the English Language. 1984. Nashville, Tennessee: Thomas Nelson, Inc.

INITIAL DISTRIBUTION LIST

Combined Arms Research Library
US Army Command and General Staff College
250 Gibbon Ave.
Fort Leavenworth, KS 66027-2314

Defense Technical Information Center/OCA
825 John J. Kingman Rd., Suite 944
Fort Belvoir, VA 22060-6218

Colonel (R) Charles S. Soby
Department
USACGSC
1 Reynolds Ave.
Fort Leavenworth, KS 66027-1352

Dr. Harold S. Orenstein
Department
USACGSC
1 Reynolds Ave.
Fort Leavenworth, KS 66027-1352

Lieutenant Colonel (R) Jack D. Silvers
Department
USACGSC
1 Reynolds Ave.
Fort Leavenworth, KS 66027-1352

CERTIFICATION FOR MMAS DISTRIBUTION STATEMENT

1. <u>Certification Date</u>: 18 June 2004

2. <u>Thesis Author</u>: MAJ John T. Harris

3. <u>Thesis Title</u>: Effects-Based Operations: Tactical Utility

4. <u>Thesis Committee Members</u>: _____

  <u>Signatures</u>: _____

  _____

5. <u>Distribution Statement</u>: See distribution statements A-X on reverse, then circle appropriate distribution statement letter code below:

(A) B   C   D   E   F   X   SEE EXPLANATION OF CODES ON REVERSE

If your thesis does not fit into any of the above categories or is classified, you must coordinate with the classified section at CARL.

6. <u>Justification</u>: Justification is required for any distribution other than described in Distribution Statement A. All or part of a thesis may justify distribution limitation. See limitation justification statements 1-10 on reverse, then list, below, the statement(s) that applies (apply) to your thesis and corresponding chapters/sections and pages. Follow sample format shown below:

EXAMPLE

Limitation Justification Statement	/	Chapter/Section	/	Page(s)
Direct Military Support (10)	/	Chapter 3	/	12
Critical Technology (3)	/	Section 4	/	31
Administrative Operational Use (7)	/	Chapter 2	/	13-32

Fill in limitation justification for your thesis below:

Limitation Justification Statement	/	Chapter/Section	/	Page(s)
_____	/	_____	/	_____
_____	/	_____	/	_____
_____	/	_____	/	_____
_____	/	_____	/	_____
_____	/	_____	/	_____

7. MMAS Thesis Author's Signature: _____

STATEMENT A: Approved for public release; distribution is unlimited. (Documents with this statement may be made available or sold to the general public and foreign nationals).

STATEMENT B: Distribution authorized to U.S. Government agencies only (insert reason and date ON REVERSE OF THIS FORM). Currently used reasons for imposing this statement include the following:

1. Foreign Government Information. Protection of foreign information.

2. Proprietary Information. Protection of proprietary information not owned by the U.S. Government.

3. Critical Technology. Protection and control of critical technology including technical data with potential military application.

4. Test and Evaluation. Protection of test and evaluation of commercial production or military hardware.

5. Contractor Performance Evaluation. Protection of information involving contractor performance evaluation.

6. Premature Dissemination. Protection of information involving systems or hardware from premature dissemination.

7. Administrative/Operational Use. Protection of information restricted to official use or for administrative or operational purposes.

8. Software Documentation. Protection of software documentation - release only in accordance with the provisions of DoD Instruction 7930.2.

9. Specific Authority. Protection of information required by a specific authority.

10. Direct Military Support. To protect export-controlled technical data of such military significance that release for purposes other than direct support of DoD-approved activities may jeopardize a U.S. military advantage.

STATEMENT C: Distribution authorized to U.S. Government agencies and their contractors: (REASON AND DATE). Currently most used reasons are 1, 3, 7, 8, and 9 above.

STATEMENT D: Distribution authorized to DoD and U.S. DoD contractors only; (REASON AND DATE). Currently most reasons are 1, 3, 7, 8, and 9 above.

STATEMENT E: Distribution authorized to DoD only; (REASON AND DATE). Currently most used reasons are 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10.

STATEMENT F: Further dissemination only as directed by (controlling DoD office and date), or higher DoD authority. Used when the DoD originator determines that information is subject to special dissemination limitation specified by paragraph 4-505, DoD 5200.1-R.

STATEMENT X: Distribution authorized to U.S. Government agencies and private individuals of enterprises eligible to obtain export-controlled technical data in accordance with DoD Directive 5230.25; (date). Controlling DoD office is (insert).